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The Shrinking Dollar

THEORETICALLY, people in the United States are rolling in wealth these days. Practically, the doctors of the country are not any more prosperous than they were last year or five or ten years ago. The reason—the dollar is shrinking. As Dr. Thomas F. Reilly points out in a recent number of *The Medical Record*, the cost of living has advanced fifty per cent within the last two decades. Everything has gone up, except the physician's income—that remains stationary. As a matter of fact, 118 years ago, the Medical Society of the State of New York drafted a table of fees, and these were almost as high as doctors are now getting for the same services, while in some localities they actually were higher; and yet, the dollar at that time had a purchasing power nearly three times as great as it has today.

Measuring the earnings of the physician of the present day with those of organized skilled labor, Doctor Reilly says that we do not make a very good showing. The bricklayer, the carpenter, the painter, and numerous other laborers earn more per hour, as well as more per year, than do many of our physicians. Indeed, as that writer shows, the average earnings of the bricklayer are considerably higher than the average income of the physician, while economically the former is immensely better situated.

"To compare the economic relations between the money invested in a medical career, the time and effort spent in study and preparation, and the lean years with that of the bricklayer would seem at first sight to be a joke," comments Doctor Reilly. If we take into consideration also "the cost of the physician's occupation," his clothing and that of his wife and children, the cost of his office and his equipment, his medicines, his societies, his vehicles—all these things amounting to at least $1000 per year more than his bricklayer neighbor must have—we find the doctor's dilemma still more serious.

Well, what are we going to do about it? Doctor Reilly has a number of remedies. There are various ways, he declares, in which we can raise our income without violating the ethical code. For instance—

1. The first thing is, "the successful merging of business methods into professional practice"; in other words, put your practice on a business basis. That means better bookkeeping, better collecting, no cutting of fees and charges, and firmness in dealing with deadbeats.

2. Next, raise your fees; and the only successful way of bringing this about generally, Doctor Reilly is convinced, is, for each county society to adopt a fee-table. The ideal method would be, to raise the fees as a whole, so as to approximate a living-wage, just as the trade unions do; the living-wage to be determined through a collective investigation.

3. The fees can be so adjusted that special remuneration may be exacted for special and unusual services. For instance, there should be an extra charge for the first consultation, at which occasion much time is taken up by the exhaustive physical examination necessary for best work. Also there should be special charges for examinations of the blood, urine, sputum, feces, and other secretions.

4. At subsequent office-visits, the physician should make it a routine practice either to make a partial examination with instruments of precision, such as the sphygmomanometer, stethoscope, and the like, or else some special treatment should be instituted. Simply to tell the patient to keep right on doing what he has been doing does not seem to the latter sufficient justification for a reasonable fee. He must feel that he is getting his money's worth. If you actually give him a *quid* for his *quo*, by adding to your knowledge of his case every time he calls, he will pay you more willingly.

5. As to special measures, it is often desirable and helpful to employ some kind of mechanical apparatus for the treatment of the nose, throat, chest or other portion of the body. There is scarcely a disease or complaint that may not be treated by such means. Electrical, x-ray, hot-air, and other appliances have become a necessity. Not only will the patient be benefited if the treatment is given with skill and understanding, but it often brings him back to the office—which is not the case when only a "slip of paper," a prescription, is handed out to him.

6. The physician should charge for the minor professional services, such as writing death-certificates or certificates of health, also for giving advice over the telephone. It is rare, indeed, that any patient will object to a reasonable charge for a service of this kind.

7. Another way of making the patient feel that he is getting more for his money, says Doctor Reilly, is, to supply him with medicine. "Office practice," Doctor Reilly, sets forth, "is cultivated by this means in places where the fees at the office and at the house are the same. The patient feels that it is worth the extra trouble to go to the office by saving the cost of at least some of the medicines. In these days of war, this has come to be a very important factor. Nowadays, the average prescription costs as much as the office-fee. While I do not advocate general dispensing, still, the use of a few staples, in conjunction with the prescription, will undoubtedly add to the ease of securing the extra fee in the office."

These are some of the suggestions offered by Doctor Reilly by which the thoughtful doctor can prevail upon the shrinking dollar to come out of hiding. If you analyze his argument, it all resolves itself into this: The doctor who wishes to increase his income must do better and hence more valuable work. The modern business firm constantly talks *service* to its salesmen. The retailer who gets the highest prices for his goods is the one who takes the greatest pains to be of help to his customers, who extends to them greater courtesy and shows them how to make the things they buy of the greatest possible benefit. Milady buys her dress-goods from the clerk who can tell her about the matching of colors, choice of trimmings, and will offer her practical suggestions as to how to make up the gown so that it will be most attractive.

The advertising man not only sells to his customers space in his magazine, but *he sells them service* as well. He helps the advertiser prepare his copy, explains to him how best he can follow up his advertising through circular-letters or by personal appeal. The manufacturer, likewise, imparts to his customers the maximum of information relative to his wares, so that they may be used intelligently. If his is an up-to-date concern, it has a complete service department for their comfort and convenience. This department is a bureau of information for all kinds of knowledge, and it keeps people constantly in touch with, and interested in, "the house." The doctor must learn something of this service idea. In the past, his work has been too slipshod. He has been altogether too content to let patients drift into his office, and has made little effort to prevent them from drifting out and away forever.

He must make the office itself more attractive, especially to the women folk; it should be distinctive of his profession, equipped for handling any emergency.

He must make his examinations more thorough, not only because people appreciate

the value of thoroughness, but also because it enables him to diagnose more accurately and thus treat his patients more successfully.

He should know more about the various methods of treating disease and be prepared to employ all physical and medical agencies likely to prove of value.

Every medicinal need of the patient that the doctor can properly supply, he should supply. Every physician should carry a small stock of commonly used remedies, even if he ordinarily prescribes.

He should establish his position as an authority in all things pertaining to health, and put his knowledge at the service of the community.

Finally, he should impress upon his patients the fact that he knows these things, so that they, in turn, can appreciate their importance as measured in dollars and cents.

The great underlying secret of how to increase the doctor's income is, after all, answered in a single word—*thoroughness*. The doctor who will take the time and trouble and energy sufficient to study this income problem from every possible angle and then put into application what he has learned, keeping the service idea in the front of his head, will have very little reason to find fault—provided he has the requisite knowledge and ability, as the majority have.

The man who is trying to do
The best that he may is never
Beset, when the day is through,
By any troublesome doubt whatever;
He is never inclined to sigh
For the follies that are denied him
Nor at night does he fearfully eye
A phantom that hurries beside him.
—*S. E. Kiser*

THE PHYSICIAN AND THE MICROSCOPE

We can hardly conceive how, in these days, a practitioner of medicine can manage to get along without a microscope. We are not and, as our readers well know, never have been sticklers for all the paraphernalia and technic of the laboratory in the general practice of medicine. We do not believe it is necessary for the doctor to possess all the apparatus and appointments of the medical and biological and chemical and pathological departments of a great university, in order to be a successful practitioner of medicine. We do not even believe it is essential for him to have a working-knowledge of all these branches of medical science. And, if this be heresy, make the most of it. For most of this, he can rely upon the laboratory expert. But, in the present state of medical knowledge and with our present views of infectious diseases, it is hard to conceive how diagnosis can be adequately performed, even by the general practitioner, without a microscope.

The usefulness of this instrument by no means is confined to rare and obscure diseases. There is hardly an infectious condition with which the doctor may come in contact but owes its positive diagnosis to the microscope, and almost all the metabolic diseases may have invaluable light shed upon them through the glass of an objective. To make mention of no others, surely the recognition and positive detection of such old friends (or enemies, rather) as tuberculosis and diphtheria are of themselves sufficient to warrant the expense and, if need be, the sacrifice of equipping oneself with a microscope. And it may be safely asserted that he who once possesses himself of one of these useful instruments will speedily find the range of its usefulness increasing with every day and week and month and year.

It is usually accepted as a necessary premise that the country practitioner is more or less exempt from the necessity of equipping himself with such ultrascientific armamentaria. Nothing, however, is further from the truth. If anyone is justified in leaving such things out of his equipment, it is the city man, who lives in the midst of a hundred facilities for having this work done for him by specially established laboratories or by the hospitals with which he may be affiliated. The country practitioner, on the other hand, has no such facilities at hand. Either he must do his own microscopic work or it will largely go undone. And, while, as we have intimated, there is doubtless a great deal of ultrarefinement of laboratory work which is not really essential to the general practitioner, the microscope has unquestionably aligned itself, in these days, with the thermometer and the stethescope as a necessity of practice, rather than as a luxury of technical science.

There is really no economic reason why any practitioner should not avail himself, nowadays, of the service of a microscope. To be sure, to the rural practitioner, its purchase usually means something of a financial effort; but a good microscope does not cost nearly as much today as it used to, and it can be bought upon very easy terms—some of our own advertisers are making very generous offers in this respect. And, we repeat, the sacrifice (if it does entail a sacri-

fice) will be amply repaid by the wonderful addition it will make to the doctor's diagnostic, and therefore to his therapeutic efficiency.

For heathen heart that puts her trust
In reeking tube and iron shard—
All valiant dust that builds on dust,
And guarding, calls not thee to guard,
For frantic boasts and foolish word,
Thy mercy on Thy people, Lord!
—Rudyard Kipling.

A GREAT CRIME: PERMITTING MURDER OF THE WHOLE RACE

There be those among us who by constitution are "mugwumps"—in that their kind are unable to coerce themselves into the role of partisans, but perforce must give to each side of a question its due consideration. This judicial frame of mind carries with it certain disadvantages, for it pleases nobody; rather, it generally causes both sides to a controversy to rank such a judge among their enemies.

Looking as dispassionately as our nature permits upon the ways and queernesses of our fellow men, we must say that, while certainly there is a progress perceptible, the onward movement partakes, as to celerity, of the glacial period. An impulse is communicated to the current of human thought, then, after a period of agitation, there is a heavy surge forward. But this comes after the original agitators have been buried in the debris loosened by their own dynamiting.

The forces most effective in restraining progress are: inertia, ignorance, superstition. Take for illustration the latter factor: In the Gospel we read that Jesus, on one occasion, remarked that the Sabbath was made for man; not man for the Sabbath. This great principle might be applied by the many excellent folks who make of the Bible a fetish, instead of busying themselves learning from its pages how to conduct their lives to the ends inculcated so clearly by its precepts. But, no, these ilk will insist upon making of the great Book an authority upon anything and everything—following the line of that erudite editor who said: "If you are deficient in anything, read the Bible."

The idea that the Bible is an inspired work on cosmogony, was demolished by the voyages of Columbus; still, after more than four centuries gone by, the body of the Christian world has not yet realized this truth. That the scriptures are not a miraculously endowed authority on sanitary science, might be suspected from the tremendous importance paid to prophylaxis against that scarcely infectious malady leprosy, while altogether ignoring tuberculosis. To this disposition to worship the Book instead of the Deity we may attribute the senseless antipathy against snakes that leads people to destroy not alone the deadly species, but also those harmless ones that are so valuable as exterminators of bugs and mice and other noxious pests of the soil. Also—and this is the true *onus* of this diatribe—we blame this irrational sentiment for the prevalent prejudice against measures designed to prevent the spread of venereal disease, by reason of those people looking upon this as strictly a moral question and outside the pale of social legislation.

Here are some thoughts concerning this group of maladies, as expressed in a paper in *Public Health* by Arthur F. Fischer:

Recent investigations show that a degenerative influence has paved the way for many modern diseases, until it has become a real menace. This we have definitely determined to be the venereal diseases.

These cause the deaths of 250,000 people directly and indirectly each year. They cost the lives of 500,000 prostitutes every six years.

One-eighth of all human disease and suffering is due to these.

Sixty percent of all males are at some time in their lives diseased with them. Sixty percent of the inmates of our insane-asylums are there because of them.

Full eighty percent of children born with sight, but blind within a few days, owe their misfortune to this curse. From 20 to 25 percent of the inmates of the blind-asylums are there because of gonorrhea.

Gonorrheal infection of innocent children is becoming serious; some cities showing 800 to 1000 such infections each year.

Gonorrhea causes 60 percent of unwillingly sterile marriages. It may cause foot abscesses, valvular heart troubles, joint diseases, and many others.

Approximately 80 out of every 100 women who die of diseases of the reproductive organs have been infected innocently.

That 25 percent of syphilis is acquired innocently, that baby blindness has implicated gonorrhea, besides laying the foundation for local tuberculosis, cancer, and ectopic gestation, brings us to face the situation.

General syphilization has lowered resistance to many diseases.

Feeble-mindedness, degeneracy, and insanity often result directly from syphilis. It

is the greatest factor in the death of prematurely born children, the frequent basis of miscarriage.

It is a common cause of general paresis, locomotor ataxia, brain abscess, and nerve degeneration. It indirectly causes one-half of all cases of tuberculosis.

The remedy proposed is: education, cooperation, regulation, a correct estimate of the ravages of the disease, segregation, and effective treatment.

Every word of this terrible presentment is true. Even so, not half, not a fourth is told. But the remedy proposed is the merest twaddle. You may talk till the cows come home; you may preach; you may legislate; yes, Dame Partington with her broom had a better chance against the Atlantic Ocean than you will have of controlling this social evil with your measures.

Let us face the truth honestly. There has never been a people, race, government, climate, latitude, law or religion that has succeeded in preventing illicit sexual intercourse; and, granting that 25 percent of venereal disease is incurred innocently (and we believe this is far short of the truth), it all comes back finally to illicit sexual intercourse as the ultimate cause of this group of diseases.

Every effort to stamp out these maladies, whether by registration of public women, by segregation or by lock hospitals, has ignominiously failed, just as the religious teachers have failed merely by preaching morality.

There remains the one obvious method, as yet untried in the civil community, although in the naval and military it has succeeded better than any other, namely, the direct prevention of infection by means of germicide agents used locally immediately after exposure to infection.

When the need is so great, so evident, why, in the name of the human race, has this obvious method been passed by without being accorded due attention?

Some years ago, the head of a great chemical manufacturing firm consulted the present writer about taking up the manufacture and distribution of this venereal prophylactic—the same that was being used in the Army. The value to the country was beyond computation; the remedy was effective, the profits were large enough to warrant the commercial venture. The writer's advice was against the enterprise. The reason—that all over the country there would arise the cry that the thing was an encouragement of immorality, and, untrue as this was, it would give the firm such an undesirable reputation as would seriously prejudice its general interests. The idea was dropped.

The situation is startlingly serious, and is growing more appalling every year. Let those who object to this rational method of meeting this crying need devise other ones, and let them have opportunities to put them in operation. If after the fullest trials their remedies have proved ineffective, then, for the sake of humanity, they should withdraw their objections to the one cure proposed and permit its adoption.

Meanwhile, with the greatest reverence for the sacred books of the ancient Hebrews, as exponents of a system of morality which the world has pronounced the best ever placed in the hands of man, we may be allowed to quote the words found in the "Bigelow Papers":

"John P.
Robinson, he
Says they didn't know everything down in Judee."

An old maid is any livin' thing, male or female, human or horse, cat, pig, or chicken, that's so finicky, so p'ticular about some one little thing that don't really amount to much, that he don't pay no attention to some of the really important things of life.—Stephen Conrad.

FOREBODINGS: THE CURE

There is one condition against which the utmost art of the physician fails, and that is, a settled conviction on the part of one's patient and the household that the former will not get well. No matter how powerful the will, how highly developed the intellect, no man born of woman can resist such an influence.

A very distinguished physician, a gifted *raconteur*, a man entirely free from the old-time superstitions that restrict the intellectual flight and clip the wings of reason believed that he would die at about a certain time. Why? Because the men of his family before him had died at that particular time of life. He did die at that age.

A ship-builder determined to dissipate the "Friday" superstition (a thing that dates at least as far back as Babylon, ages before Abraham); so, he laid the keel of a vessel on a Friday, launched it on a Friday, and sent it to sea on a Friday, under the command of a captain named Friday. The vessel never was heard of after its departure. Very likely the crew, disturbed in mind over the matter, fell into a panic at some critical moment and lost the ship, when alert boldness might have saved it, and them.

Well you recollect that, when the Kentuckian was told about whisky interfering with his business, he gave up the business. In the same way, when the patient's entourage is convinced that he is going to die, make him change the environment. Change it radically, completely. Send the patient off on an extended automobile trip, leaving the croakers at home. Let nobody accompany him except someone who doesn't believe that he is ill, but tells him it's all imagination. Take elaborate pains to do all possible for this sick man, but do not tell him so. Belittle his complaints, but attend to them. Give him many frequent doses of hopefulness, as the principium, plenty of good laughs as the adjuvans, a little ridicule as the corrigens, and a life in the open as the menstruum: and there is your official, four-pronged prescription—and appetite, digestion, somnos, sthenia, will follow.

Suppose he dies? Well—think you are the Almighty, do you? Doesn't every human being die eventually? And would you not rather die fighting than lie down and have your gullet cut like a sheep? Our own ideal is the Cumberland, which sank under the attack of the Merrimac, but left her flag still waving over her watery grave.

The greateſt and moſt intereſting of all ſtudies is man himself. Aſtronomy appeals to the imagination; botany, to the love of beauty in floral nature; geology, to the desire to know how the earth was prepared for habitation. But the study of man appeals to every mental and physical quality with which he is endowed. He is ſtill the unsolved riddle of the ages.—Sullering.

THE MORNING REFRESHER

Snatched from business and rest, called away to save a valued friend from impending death, the question tortures my mind: What dread destroyer casts over his bed of sickness the shadow of doom? Is it pellagra, variola, cholera, swift tuberculosis, scalpel-defiant pneumonia? No, none of these, none of the storied plagues or the modern pests. It's impaction; just a huge fecal impaction. The patient, luxuriating in the convalescence from a long and baffling malady, has forgotten that the alimentary canal is also a sewer, and that the channel must be kept open in order to fulfil its function properly; and, so, he proceeded to eat and drink, and was merry, without taking thought for the matutinal intestinal flushing.

Students of Burggraeve begin by observing curiously the insistence by the wise old Belgian upon the preliminary cleansing of the bowels. As he reviews each malady. n turn and drifts into prophylaxis, one feels inclined to smile over the old surgeon's hobby—for every ailment, he starts out with the stereotyped, "Empty the bowels"; and, in descanting upon the means of keeping well, he likewise "refreshes the bowels" with the morning laxative. If you are sick, take salines; if well, take salines.

That distinguished medical authority, Mark Twain, said that, were he to open a dispensary, he would stock up with a barrel of salts, and let 'er go.

The keynote of our own therapeutic system lies in the familiar maxim: "Clean out, clean up, and keep clean."

By this time, one begins to sit up and take notice. He reflects on the instant popularity of Haig, with his urgence of elimination; of Bouchard, with his demonstration of the evils due to each toxin retained in the system; of Lane, and his energetic attacks upon the mechanical causes of fecal retention. Then perhaps the recollection of some personal experience rises like the flavor of last night's rarebit—some case where one blundered along uselessly until a profuse offensive alvine discharge made clear the diagnosis, and accomplished the cure.

Just as soon as the doctor's curiosity is aroused, his own cure is established. It is very easy to recognize the existence of fecal toxemia and to appreciate the effect of this pathologic factor upon any disease-process, any disordered function. And just so soon as the internal elimination measure is established in the doctor's routine, his success in practice increases and his cases begin to become simpler and more mild. Malignancy is rooted in poor hygiene, internal and environmental.

I think that Nature, that primeval deity antedating grouchy old Saturn, intended her human offspring to begin each day with a long draught from the babbling spring. Possibly she had an object in dissolving in it a pinch of mineral salts, for even the most simple autochthons prized their saline springs. It may be because we have wandered far from nature's pristine paths that the pinch of salts has to be a little larger, but, certainly, modern man is the better for the matutinal saline draught.

We have our individual preferences, founded, perhaps, on the fact that, while the Lord made man in His own image, He did not make any two men exactly alike. Each selects what best suits him and his conditions. I have partaken of a small spoonful of one saline laxative each morning

for twenty years, without having had to increase the dose. This suits me, because it acts once, and no more, an hour after being taken. Other forms continue to act during the day, which is inconvenient in a city not provided with public comfort stations. Many a man is driven to drink by the necessity of patronizing saloons to meet these demands of our delicate nature.

If there is any ill chargeable to this saline habit, it as yet is imperceptible and surely a long time coming. Meanwhile, the refreshing of the bodily and mental faculties, the alertness, the joyousness of living seem to be well worth that problematic evil consequence that constipated croakers apprehend.

"BUBBLE" AND "SQUEAK": A SIMPLE STORY WITH A MORAL

Among the interesting comments upon Morley's able summary of the pros and cons of the injection-treatment of hemorrhoids, originally published in the London *Lancet* and reprinted in last month's CLINICAL MEDICINE, is that contributed by Dr. Ivor Back, himself a distinguished authority on rectal diseases. In this article, he tells a little story that is so *a propos*—so pat, has so many applications, that we reproduce it here for the enlightenment of the members of our own numerous "family."

"There was once upon a time," so the tale runs, "a king in Erewhon, who, like so many a rich layman since his day, thought to ensure his bodily health by having a variety of medical advice. So, he attached to his court two alchemists (or, as some call them, physicians). Their names were Bubble and Squeak, and there was great rivalry between them.

"Now, in the course of his researches, Bubble had discovered an herb with which he claimed he could cure the *fundamental* ailments of the human body. (Bubble was the first proctologist in history.) Squeak said that Bubble was a quack, also that the herb was not only useless, but also dangerous.

"One day the king's wife became conscious of a small pile. She consulted Bubble, and he cured her. So, the king, who was a just king, cut off Squeak's head, because he was a liar. Some time later, the king himself also became afflicted with a pile; but his was a large and troublesome one, which prolapsed, and was irreducible, whenever he became excited—as kings are prone to become. Then he, too, tried Bubble's remedy. But this time the wonder-herb failed. So, the king, who—as we have seen—was a just king, cut off Bubble's head also, because he, too, was a liar.

"The herb—though, for aught we know, it had its uses—fell into disrepute, and this was the result of the exaggeration of the enthusiast, on the one hand, and of the bigotry of the skeptic, on the other."

In this day of the irresistible and irresponsible smashing of idols, it is well to remember that the old methods are not yet all dead. But—there are many remedies that were widely used and highly praised by our fathers and grandfathers in the healing art which are too rapidly passing into disrepute and oblivion. Many of these were good once, and are good now, but, because we do not understand how they act, because the new pharmacology proclaims that they do not act—can not act— we are turning our backs upon them, ready to forget the strong testimony in their favor submitted by men who were but little less wise than we are. In these days, we should be studying our drugs from new angles, as a matter of course, but we also should relearn the lesson of conservatism.

The doctor assuredly is king, but, let him be a just king.

The riches of our Commonwealth
Are free strong minds, and hearts of health;
And more to her than gold or grain,
The cunning hand and cultured brain.

John G. Whittier

WHAT CHEMISTRY MEANS TO THE NATION

We are printing in this issue an article written by an anonymous author, who signs himself "An American Chemist," and entitled "The Arts of Peace." It appeared in the April 8 number of *The Lancet-Clinic.*

It is but very seldom that we reproduce in CLINICAL MEDICINE an article that already has been published in another journal; however, we do not hesitate to deviate from our practice in this instance, because we believe the article to be of vital interest to every good American.

Be sure to read that article. The author shows, in a way which we believe must bring conviction to every reader, the importance of the chemical industry to the stability, safety, and future industrial development of our country. Every physician should realize this, because of the experiences he has gone through during the last two years. If no more, he needs but to scan a comparative table of the prices of drugs current before the

war and those ruling at the present time—with their rapid upward tendency.

Chemistry, pharmacy, and medicine are inextricably interwoven, and all three occupations are an absolute necessity for the welfare of the one hundred million people of this nation. "The Arts of Peace" will convince you of the truth of this statement.

Then let us, one and all, be contented with our lot;
The June is here this morning, and the sun is shining hot.
Oh! let us fill our hearts up with the glory of the day
And banish ev'ry doubt and care and sorrow far away.
James Whitcomb Riley

STUDY YOUR DRUGS

Some day when you tire of the usual dull round of ultra-scientific papers that fill the pages of our journals, take up the study of the powers of some of our commoner drugs. You will soon be interested to note how very little is really known of their action and their *modus operandi*—and how clearly these may be ascertained; how accurately they may be applied to relieve pathologic conditions; and you will wonder what the profession is about, that it neglects this most promising field of investigation. For it *is* ripe for investigation. The entire materia medica remains to be restudied under the light of modern physiologic and pathologic knowledge. The older researches supply us little more than indications of the right directions to go, those most likely quickly to reward our efforts. We have scarcely any researches on drug action in pneumonia since the discovery of the pneumococcus, so how can we believe that the therapeutics of prehistoric times needs no modification now?

Begin with atropine. Study it clinically. Take its power of dilating the cutaneous capillaries. Apply that power wherever such an action is useful, as indicated in any affection that presents this as a desirable and beneficial manifestation. When you have mastered this one drug, you have the key that opens the way to the entire domain of modern, scientific therapeutics.

You may proceed to the study of the other members of the mydriatic group—hyoscine, hyoscyamine, duboisine, scopolamine, mandragorine. You may add as pendants the antagonists and synergists, taking in the pilocarpine group, the gelseminine group, the hypnotic group, the strychnine group; and if you have so far mastered these as to be able to differentiate between the applicabilities of the separate members of each, you will be ready to agree with the writer, that there is enough in the study to reward the effort you have made.

Why not make a start *this* month?

THE PROBLEM OF THE TYPHOID-CARRIER

Last summer, Mackinac Island had an outbreak of typhoid-fever. This occurrence has been investigated by the Michigan State Board of Health, and the source of infection was traced to a woman employed at a dairy. It was ascertained that twenty-nine years previously this woman had had typhoid-fever. It would be highly interesting to follow her doing the intervening period, since there is no doubt that she has left behind a trail of typhoid-fever victims.

It is gratifying to feel assured that this outbreak was not a consequence of insanitary conditions on the Island and that this lovely resort is free from the faults that toward autumn send so many summer-visitors back to their city homes with systems swarming with the germs of typhoid-fever. The water at Mackinac, we know, is pure and the soil uncontaminated. However, the possibilities arising from the dairy in question may be duplicated anywhere, and with equally disastrous consequences.

The woman we speak of was employed at a certain dairy, and in handling the milk her urinary or fecal excretions in some way imparted the typhoid-bacilli to the milk.

Pleasant thought!

The place swarmed with flies, and there was an unprotected outhouse very close to the milkhouse. Wholly unnecessary, of course! It is a simple thing to construct a sanitary and safe privy, even where there is no sewer-system. We also know how to rid the premises of flies.

How?

Let us tell you.

Doctor Waugh has devised the following plan for application at his summer place near Muskegon, Michigan:

A tract is selected a goodly distance away from the house as well as from the well, and located between these and the lake further down, into which latter the drainage is carried—the water-table dropping in that direction. At the selected spot, a row of holes, each about 18 inches deep, is made with a posthole digger. Into one of these holes the garbage, washwater, and dishwater are poured, and a large fly-trap is set over the hole. When nearly full to the top, this hole is filled in with sand. Then

another hole is utilized in this way. In the place of such a filled-in-hole, there is planted a tree, shrub, or any suitable plant—let us say, beans or potatoes, the garbage thus serving as an excellent fertilizer.

In the autumn, when the Lumsden toilets are emptied, the excrementitious material is carted far back to some unsettled section, where it is deposited in holes similar to those described, and then fruit- or nut-trees set over each one thus filled in.

The conclusion drawn by the Michigan authorities from the Mackinac epidemic is that all milk should be pasteurized before leaving the dairy.

Meanwhile the woman who was the cause of the general infection is detained at the Cook County Hospital, where efforts are being made to rid her of the infectious organisms. Here is an opportunity that should be embraced, namely, to ascertain what agents are capable of ridding one's alimentary canal of typhoid bacilli. It should theoretically be more simple, in the premises, to degerminize a single individual than to pasteurize, year in and year out, the milk of a whole community.

Read the short article on typhoid carriers, printed in the What Others are Doing Department, this issue. It will show you how Carnot handles these individuals in France. mainly by the bacterin method.

MOSQUITO-NETS, AND COMPENSATION

Now, that fly-time has come and the buzz of the bluebottle is heard in the land, every sanitary journal, official and departmental, is beseeching its readers earnestly to swat the fly and to put up screens. But, while by the latter precaution we may exclude the germ-distributor, we find that, like other desirable things, this advantage must be paid for. Since Emerson formulated the law of compensation, the rest of humanity has been observing apt illustration of its wide applicability. Ergo—

On taking a flying trip from the still chilly regions of the Queen City of the Unsalted Seas away down into the South, we find the spring far advanced, the air redolent with blooming roses and resonant with the song of birds; however, these joys are compensated by the just-as-early swarms of flies and mosquitoes.

We retire to a bed which our thoughtful hostess has enshrouded with a lofty canopy of lace and drop off to sleep, happy and content in the conviction that we are immune from winged nocturnal marauders. Good, but the bar that shuts out the foraging "skeeter" likewise hinders the circulation of the air, so that toward the morning hour we awake from a dream of being strangled by two "furriners" drawing a silken cord!

We, as physicians, know well that such dreams are associated with air-hunger. We likewise know that the meshes of a mosquito-net or of a screen admit very much less air than if the circumscribed space is unobstructed for the gleeful cruises of the piratic squadrons of muscous freebooters. In a general way, our patients know these things, of course, but very much in the uninterested, impersonal way in which they know of the Punic wars or the twenty-nine nationalities of Austro-Hungary. More and more the conviction deepens in us that the physician should seize upon the post of sanitary adviser.

The family doctor should be the family hygienist. The field is unoccupied; he has no competition—save, it may be, for the syndicated sageness of Doctor Evans. The externist who sells cures has no standing beside the internist who preserves health. The alarming array of "symptoms" portrayed in the patent-medicine almanac would cease to terrify the man whose doctor has just given him a life-insurance examination and assured him that he ails in nothing and will take down Methuselah's longevity record, if only he will eat more fruit, use less tobacco, squelch his grouch, clean up the back yard, move the toilet further from the well, get the decaying remnants of last year's potato crop out of his cellar and store in their place the sashes of his bedroom-windows, besides attending to a few other items of such everyday commonplace nature that anybody can comprehend them.

Put the proposition—and the monthly salary—before your patients, and hear what they have to say about it.

THE HOSPITAL IN MODERN PRACTICE

Little Rock, Arkansas, has a hospital with three hundred beds. Little Rock is not a large city nor the center of a populous section of territory; yet, the hospital is too small for the demands made upon it.

At Muskegon, Michigan, a youth was seized with acute rheumatic fever, and at once was whirled off to the hospital.

At Rosedale, Mississippi, we find several citizens who have been to the Mayo institution in Minnesota, for surgical operations.

From a small town in Tennessee, two residents are in sanatory institutions in Illinois, one of them for a number of years.

All over the land, the same story is repeated. The sick no longer are cared for in their homes or by the local doctors, but hurried off to city specialists and city hospitals.

What is there left for the doctor to do and how does he make his living? By the time a patient, cared for at home, has paid the salary of a trained nurse, the dietary and pharmacal expenses, there is very little left to pay the doctor; and he naturally prefers to send his patients to the hospital—but where does *he* come in?

Don't be in a hurry to wail over the degeneracy and commercialism of our profession, until you ascertain how the doctor pays for his food, clothing, rent, and the family expenses generally.

Really, it does not seem that this is the time to suggest that the doctor take the position of sanitary adviser, with a monthly salary for keeping his patients well, as much as it is to ask how else he is going to make his living. If there is any other way open to us, please tell us what it is.

The obvious demands action. Why wait, like a balky horse, until one has to build a fire under him to make him get on a move? Novelty attracts attention. Motion, activity wins support. Reforms and innovations are never so successful when one waits until they are forced on him. In any event, we must move, for, if we stand still, somebody else will be stepping on our heels.

No more does the doctor who is called look wise, ask a few questions, and pull out pencil and prescription-pad. We call on various specialists, to examine the various organs, the x-ray man, the laboratory-investigator, the bacteriologist; we let another prepare a vaccine or a serum; the well-starched nurse attends to the details; and, if all goes right and "according to Gunter," the coroner's physician makes the autopsy, and his report completes the case. Four—or five-thirds of his former duties having been absorbed by others, with corresponding portions of the patient's cash, the doctor attends to, and gets, what is left.

And that, generally, is himself.

THE TREATMENT OF GRIP

One qualification appears to be desirable in one who assumes the function of critic or of editor, this being that he know something about the subject upon which he undertakes to write or about the writer of the stuff he chooses to criticize. For instance, here is a paper in a stately state medical journal, by a gentleman signing himself "Resident Pathologist" to a saintly hospital, on the treatment of bichloride poisoning. Not knowing the gentleman, we will assume that he has a right to ventilate his views, by virtue of his official position. But, we read: "At the present date, there has been no specific treatment worked out [for bichloride poisoning]. The idea of reducing the mercuric chloride to the mercurous chloride, by the administration of calcium sulphide, sodium phosphite, and so forth, has been the one most used. While this may be possible in the test tube, it has not proved of great value practically."

This in the face of the very remarkable work done by Thomas A. Carter in the hospitals of Chicago. Evidently "Resident Pathologist" has not heard of this—but he should have known of it before presuming to write in authoritative manner on a problem on which human lives depend.

And now look at the article on the treatment of grip, contributed by Otto Lerch to the current number of *The Medical Standard*. Lerch has established a reputation as one of the most accomplished diagnosticians in the United States, and—rare combination since Da Costa—as a really skilled therapeutist. His work, therefore, is well worth republication.

Doctor Lerch dissents from the view that makes the Pfeiffer bacillus the sole pathogenic agent of influenza. This particular bacillus is rarely found in the blood, unless after death, when diagnosis seems rather late for practical purposes. This organism is also found in a large number of acute and chronic diseases. Clinical symptoms show grip as an epidemic appearing regularly with autumn and remaining until spring. "Osler calls this complication the friend of the aged. I wonder whether he looks forward to a visit of his friend now, when he is getting on in years."

"Nothing but hardening of the body and due caution will to some extent protect. . . . . Quinine . . . . I believe in its prophylactic properties. A 3-grain capsule at night will to some extent protect. . . . . Rest in bed is the most important remedy to cure. . . . . Nose and throat have to be freed from mucus thoroughly, and antiseptic sprays and gargles may then be used, and the nares anointed with borated vaseline. . . . . Silvol may be used in nose and throat in watery solution, 5- to 40-percent. . . . . Open the bowels at

once; mustard to chest and feet; ice to head; I have frequently seen dilated hearts shrink to normal size after purgation with calomel followed by a saline laxative. . . . . Ventilate, keep temperature of room between 60 and 70 degrees; liquid diet—heavy meals may occasion fatal relapse.

"Specifics we have not. Vaccination and serums have proved failures. . . . . Treatment entirely symptomatic; a large dose of quinine with a few grains of Dover's powder, with physiologic measures, will often abort the disease when given at the beginning of the attack. Quinine, small doses, seems to influence favorably the course. Aconite, to relieve congestion permanently; give to effect; bleeds the veins into the arteries, slows heart and respiration, lowers blood pressure and temperature, dilates arterioles and capillaries, increases all secretions and stops pain; a reliable tincture in drop doses—preferably the alkaloid. Aspirin, and the like, may be used to stop pain and lower the temperature when needed.

"Severe cough and pleuritic pains demand narcotics in small, repeated doses—codeine, dionin, morphine, steam inhalations of benzoin, cocaine, potassium bromide (0.6, to 200 Cc. water). A Priesnitz bandage around the neck is useful in severe angina. Ammonium chloride in large doses loosens sticky mucus. Cold is not well borne. Lukewarm sponge-baths, with sedatives or alcohol added; iced towels to abdomen for hyperpyrexia; but let alone a fever of 102 degrees. Watch the heart carefully, using strychnine, camphor, and caffeine early. Reserve digitalis and strophanthus till later, giving them intravenously in collapse. Relieve the neuralgia with quinine. Protect the kidneys by the free use of water and lemonade as long as the heart is intact. Keep the patient in bed and on diet until the pulse becomes steady, and until free from fever for some days. Treat the complications."

We are just going to italicize the last injunction: "Finally, a *thorough examination of the patient has to be made in each case.*"

How often—oh! how often—in the days that have gone by, we have tingled with shame at some unlooked-for *contretemps* that has arisen, which we could easily have prevented had we taken the trouble to make that thorough examination, that really did not seem to be required at the time. Truly, it has been the rare exception that we have made such a searching investigation without discovering something of value, even of importance.

We have given merely these extracts from Lerch's paper, in order to show its practical value. The article appears in *The Medical Standard* for April, and it is well worth the trouble of procuring a copy.

The most precious things in the world are those which cannot be bought—the tender touch of a little child's fingers, the light in a woman's eyes, and the love in a woman's heart.

Myrtle Reed

PRACTICAL POINTERS FOR JUNE

Summer is at hand—and summer-complaint. Watch the baby's diet, and lay in a stock of intestinal antiseptics.

Phytolacca is indicated in the treatment of a beginning mastitis. Use the concentration —"small doses frequently repeated."

Remember that in many a bad case of sciatica, immediate relief can be secured by injecting a solution of quinine and urea hydrochloride along the course of the nerve.

"The nitrites," says Bush, "first achieved repute in the treatment of angina pectoris." Yes, and glonoin is still the best remedy for the immediate relief of angina.

If any of your little patients are subject to attacks of vomiting with no demonstrable cause, examine the urine. You will frequently find it highly acid, and acetone will be found in it.

Do you recall Clock's remarkable paper in the *J. A. M. A.*, showing how easily summer-diarrhea in young children can be controlled with Bulgarian-bacillus cultures? He even found it unnecessary to discontinue the regular milk feedings.

For persistent colicky pains in the bowels, whether associated with constipation or occasional attacks of diarrhea, put your patient upon an emulsion of mineral oil. It often works like a charm.

Chionanthus is recommended by J. R. Herr, in *Ellingwood's Therapeutist*, for the treatment of diabetes. It is given in association with sodium bicarbonate and a strict diabetic diet.

Rowntree and Macht have been investigating digitalis from various sources—American, English, German. Wonder of wonders—the domestic leaves are the most active! Why should we not produce in this country all of this valuable plant that we consume?

"Every gallstone," says Moynihan, "is a tombstone erected to the evil memory of the germs that lie dead within it." By the way, have you ever tried the sodium-succinate

treatment of gallstone-disease? If not, why not do so?

Colloidal-gold injections are recommended by Longin and Camuset for the treatment of malignant measles. Worth trying, undoubtedly; but, if your patients are kept thoroughly saturated with calcium sulphide, you will not have any cases that are malignant.

An excellent protective salve to apply to the skin in order to drive mosquitoes away is one recommended by Zucker (*Berliner klin. Woch.*, Aug. 9, 1915), as follows:

Olei caryophylli	10.0
Adipis lanae hydrosi	30.0
Glyceriti amyli, q. s. ad	100.0

Next time you have a case of chorea try small doses of tartar emetic. My friend and colleague Doctor Zell has been trying this remedy in dogs (which are very subject to chorea), and he tells me it works like a charm. Who will do some experimental work and report results?

Chicago is proud of the fact that last year it had the lowest death rate from typhoid fever of any city of its class in the United States. There were only 5.4 deaths per 100,000 population from this disease, in this city, as compared with 5.5 in Boston, 6 in New York, 6.6 in Philadelphia, 7 in St. Louis, 7.8 in Cleveland, 12.3 in Detroit, 21.9 in Baltimore, and 24.7 in Pittsburgh.

Of course you have noted the beautiful results obtained by Pritchard in the treatment of colic in babies by the steady, everyday use of an emulsion of liquid petrolatum. This is now made so delightful that every child loves it and will take it eagerly as he would candy. Don't let the baby cry; don't resort to anodynes. Cure it with this oil.

Holt is skeptical as to the frequency of worms in children. However, Greil found intestinal parasites in 36 percent of 665 children living in and near Montgomery, Alabama. Hookworms were the most common; but 10 percent presented other parasites. Pinworms were the least frequent—only 1 percent; roundworms very common. Good old calomel and santonin will long continue to be popular.

Colic in infants—the young mother's despair! What can you do? Much—by careful regulation of food, based upon observation of the stool. Relief can be secured by means of enemas and infant's anodynes. To prevent recurrences, regulate the bowels carefully, using some palatable oil-emulsion, which lubricates the bowel from end to end, thereby alleviating the tendency to spasm.

When constipation is accompanied by gaseous fermentation and when the stoo s are gray in color, *Fanz* (*New York Medical Journal*) says that hexamethylenamine gives good results, when prescribed in association with ox-gall, aloin, and cascara sagrada. This treatment, to us, suggests the bile-salts in association with hexamethylenamine, and any other laxative which may be indicated.

Have you a case of sciatica which you want to cure as well as relieve? Then examine your patient carefully for some focal infection that may be causing all the trouble. Only today I saw a patient who secured relie when a badly ulcerated tooth was extracted. Examine the tonsils, the gall-bladder, the appendix, the prostrate gland, and, if your patient is a woman, the womb and its appendages.

Atropine is one of the most frequently indicated remedies; its power of actively dilating the capillaries renders it effective whenever the blood is to be drawn away from danger points into the skin, as in all hemorrhages, chills, neuralgias, internal hyperemias and congestions, cerebral anemias, and spasm in most forms. The range is so wide one wonders why this powerful and safe remedy has never been vaunted as a panacea.

Here is a new test as to whether a woman supposed to be in labor has true birth-pains or is suffering from "false pains." Bandler (*Archives of Diagnosis*, July, 1915, p. 236) states that any woman at term who does not go into labor after a few subcutaneous doses of pituitary extract, is not at that time in labor. In applying this test, Doctor Bandler gives as a first dose one-third of an ampule of pituitary extract, hypodermically; an equal quantity is administered in another half hour, and the remainder of the ampule after a like interval.

McIves and Price (*Jour. A. M. A.*, Feb. 12, 1916) treated 81 morphine addicts—mostly denizens of the tenderloin. Twenty-one of these declared they learned the effects of the drug through its hypodermic administration to them by a physician or through a physician's prescription. *The Providence Medical Journal*, March, 1916, says that very little credence should be placed in the statements of prostitutes, crooks and thieves. "The personal experience of thousands of reputable physicians will bear out the contention that a very small proportion of drug users can truthfully ascribe their habit to dereliction of the profession, and the publication of such statistics and conclusions does the profession an injustice, while affording its enemies means for further assaults."

Leading Artieles

The Arts of Peace

Or the Relation of Chemistry to Industry

By an American Chemist.

EDITORIAL NOTE.—This important article was published originally in the April 8, 1916, number of "The Lancet-Clinic." We are reproducing it with the permission of its editor, Doctor Fischer. As the readers of "Clinical Medicine" know, it is but rarely that we reproduce in these pages articles that have appeared elsewhere. When we do so, it is because we believe such article to be of very unusual interest and importance. This is the case in this instance. This paper should be read by every physician who is now thinking about "preparedness"—and by "preparedness" we do not mean preparation for war, but rather preparation for the industrial contest in which the people of this nation will be involved after the great European war now waging is brought to an end. "American Chemist" shows in this paper, more clearly than we have seen it demonstrated elsewhere, how vitally chemistry (and chemistry includes pharmacy and medicine as well) is concerned in the future life of America. The article is not a medical one, but I wish every medical man in the country might read it. The editor wishes to add that he has no interest in the manufacture of explosives.

WE hear a great deal nowadays about preparedness, that our country is not in a position to meet successfully an attack from a foreign power, that our army and navy should be built up, etc. It has even been urged that we create a standing army of at least a million men, and that our navy be increased to equal, if not excel, that of any foreign power. We are constantly reminded that Germany has prepared for the present conflict for the last forty years, and that if she had not thus followed the program of Bismarck, she would not have been able to make the great record she has in the last eighteen months.

As everyone knows, Germany has a tremendous army and during recent years has developed a great navy. If we analyze Germany's preparedness, we soon realize that she has striven under both these arms not only to build up great corps of trained men, but that she has also seen that even the largest armies and the largest navies are absolutely powerless if not supplied with necessary ammunition. An ultimate analysis of the situation shows, therefore, that the crux of preparedness consists in an ability to manufacture explosives of high quality and in tremendous quantities, and that this manufacture must be able to go on and in sufficient amount to meet all needs, even when war is actually in progress.

This being the case, let us consider what explosives are, whence they may be obtained and why they are able to do what they do. Explosives are chemical compounds or mixtures of such, which, owing to their unstable chemical constitution, readily decompose into simpler bodies, in which process they set free enormous volumes of gases that exert tremendous pressure.

The Chemistry of Explosives

The essential element in all explosives is nitrogen. Generally speaking, an explosive body of more or less potency is formed whenever the chemical group NO_2 is introduced into any organic compound. The process is called "nitrating." When such nitrated organic compounds are ignited or detonated, the oxygen of the NO_2 group combines with the carbon atom of the organic body to which it was joined and nitrogen and oxygen is broken and the oxygen rushes over to unite with the carbon atom.

Petroleum bodies or paraffins are of such nature that they can not be nitrated directly in order to produce explosives. About six months ago, Rittman, a government employee, demonstrated that benzol and toluol could be made from petroleum. The newspapers immediately announced that now, through the Rittman process, a way had been found to make unlimited quantities of dyes and explosives. It is true that Rittman did succeed in making benzol and toluol by heating petroleum vapors under pressure and thereby breaking up the paraffins into aromatic compounds, but to the present date the process remains of purely laboratory and not

practical interest. Whether the process can be developed to fulfill the predictions made for it, remains to be seen.

Nitrogen is in itself the most inert of chemical elements, but when, through the expenditure of great energy, it is united to some other element and introduced into a molecule, this same energy is again set free when the element with which it was originally united is given a chance to combine with some other element. Nitrogen, as it were, wants to live alone. The celebrated chemist Berzelius once said that nitrogen is best recognized by the properties which it does not possess.

Nitrogen and carbon, therefore, represent the essential constituents of explosives. But unlike most commodities, they can not be stored in large quantities, for the risk is too great. Even if storehouses for them could be provided, they would have to be built miles from any city or town. Their location would then be inconvenient in days of need. The only practical way out of the difficulty resides in the possibilities of being able to manufacture explosives in amounts equal to the rate of daily consumption, even when war is in progress.

Why Making Explosives is Linked with Dyestuff Industry in Germany

In trying to meet this need, Germany realized that explosive works could not be built merely to stand idle during times of peace, for every factory, when idle, deteriorates rapidly. The question, therefore, resolved itself into the feasibility of encouraging industries manufacturing products for which there is a steady demand in times of peace, but which in times of war could have their equipment converted into explosive factories.

Germany possesses a system by which she obtains at all times expert advice from men who have distinguished themselves in their chosen line of endeavor. These are appointed as her "Geheimräthe," that is to say, her privy-councilors, or secret advisors. The German government does not embark upon any new project before it has had the advice of these men, whose opinions are based upon a thorough and scientific investigation of the matter in hand. It is this method that has made her the most efficient nation in the world.

The dyestuff and the pharmaceutical industries—especially the former—were decided upon by these men as lending themselves most readily to the manufacture of explosives. The German government therefore made it a point to foster and encourage them. As a result of this care, the dye industry of Germany has become one of its most profitable ones. It produced before the war 80 percent of the world's output in dyes, and declared dividends averaging 24 percent per year. The United States consumes only some 10 percent of Germany's output.

A sketch of the history of this industry gives an idea of its rapid growth, its influence upon commerce, and its value.

History of the Dye Industry

The modern dye industry started when W. H. Perkin, an Englishman, obtained on August 20, 1858, a patent for the production of a dyestuff known as "Perkin's mauve," from anilin. The actual production of this dye was started in France, the French making use of the information contained in Perkin's patent specifications. Its manufacture soon spread to the industrial centers of all the world and many patents were obtained in different countries. Few of these proved commercially successful.

The production of mauve from anilin stimulated great activity in chemical research, so that soon many other dyes were produced from this substance. Zinin's discovery that anilin could be synthesized from benzol (a process still followed to this day) made possible the production of anilin dyes commercially and in large quantities.

In 1859, Hofmann discovered magenta, so named because in that year the Battle of Magenta was fought. Hofmann did more, perhaps, than any other chemist to investigate the nature of dyestuffs and to determine their chemical composition. Due to his efforts primarily, England became the foremost country in the production of dyes.

In 1862, when the whole dye industry was still in infancy, Hofmann wrote: "Instead of disbursing her annual millions for these substances (dyes), England will, beyond question, at no distant day, become herself the greatest color-producing country in the world; nay, by the very strangest of revolutions, she may ere long send her coal-derived blues to indigo-growing India, her distilled crimson to cochineal-producing Mexico, and her fossil substitutes for quercitron and safflower to China, Japan and the other countries whence these articles are now derived." Hofmann's forecast came true only in part. England had vast coal fields at her disposal and her metallurgical industries were becoming more important every day. Large quantities of coke were needed, and when it

was found that the by-products of coal distillation could be worked up for dyestuffs and therefore had value, a great impetus was given to tar distillation. Through the combination, England soon outrivaled all other countries industrially. The tar distillation industry in England thrived and its output rose to be valued in the millions.

In the meantime, German industry was looking askance at the progress England was making. The German mind is particularly fitted for chemical research, as infinite patience and the faculty of minute and careful observation are necessary to carry on successfully this kind of work. Such men as Caro Graebe, Lieberman, Mischler, and Griess, through their brilliant work, gave the dyestuff industry in Germany an impetus which placed it in the foremost rank of scientific achievement.

During the early seventies, Alfred Nobel, Swedish engineer, devoted his time to the study of explosives. Many facts regarding the explosive-mixtures and detonators were known, but it remained for this able man to put the manufacture of explosives on a scientific footing. He was attracted to the work by observations he had made on the tremenduous force that could be generated through the use of certain chemical bodies. It had previously proved exceedingly dangerous to use and to store large quantities of explosive chemicals, as it was not known when these substances would go off or what were the causes determining this. Study of the action of these bodies promised much fruit. It became the aim to stabilize their action and control their explosive force. Research soon showed that a number of substances which are the products of the distillation of coal and which were used in the dyestuff industries, served well in this connection. Bismarck, who was very fond of the company of scientific men, learned to his delight (from these friends) the value of tar distillation products for the manufacture of ammunition. Having a far-seeing mind, it did not take him long to recognize that the nation having the ability to manufacture large quantities of high-power explosives of greater force than could be manufactured by other nations, would have a tremendous advantage in times of war.

As is well known, the German universities are supported in great measure by the government, and as the dyestuff industry is an eminently scientific one, an intimate connection between these industries and the universities soon arose. It became the aim of the German government to foster the dyestuff industries to the point where, in case of war, they could be converted into explosive factories large enough to take care of whatever demands a great war might create.

Let me emphasize again this enormous advantage to Germany, in fact, the necessity for her very existence, of harboring within her borders an industry which used the same raw products as an explosive industry, and of building this up to the utmost.

Building Up Foreign Trade

The consumption of dyestuffs in Germany proper is small, and owing to her size she could from the start never hope to become a large consumer herself. It was therefore necessary to build up a large foreign trade. To bring this about, special concessions in freight rates for export were granted and taxes were even remitted in order to help the general development. The spirit of scientific research was encouraged and special pensions for those men who had devoted a certain number of years to research were provided for. This made it possible to employ research chemists at exceedingly low salaries. Such advantages, with many others, helped Germany to develop her chemical industries beyond those of any other nation. It was soon found that, owing to the increased output of the chemical plants resulting from this encouragement, Germany was able to manufacture more cheaply than other nations, and, that she was also able to produce products of higher quality than those made in other countries.

Government Cooperation

Manufacturers who use chemicals and dyestuffs must buy in the cheapest market, or they can not meet competition. Foreign nations soon found it was difficult for them to compete with Germany, and many an industry which was started in the United States was put out of business because of being undersold by German products. It was the combination of expert chemical skill, favorable conditions under which they could manufacture, the genius of expert business management and the minute study of detail that helped the Germans to work up a tremendous chemical trade and especially in dyestuffs. The existence of trade conventions, known as Kartels, are of inestimable value in building up an industry. The Kartels recognize that competition carried to the extreme is the death of trade and not its life, as our government would have us believe. In

Germany, therefore, it is legal to limit competition, to have price agreements and to pool profits. In other words, the entire German dyestuff trade acts like a single corporation and can fight to better advantage any number of individual companies acting independently, for independently our companies must act or else they are guilty of illegal practice and subject to punishment. Our laws in this respect, although presumably made to favor United States citizens, really work to their detriment.

The Chemical Industry in America

The United States at one time held ten dyestuff factories. In 1883, the duty of fifty cents per pound on dyes was removed and there was substituted for it an *ad valorem* duty of 30 percent (which still exists). In spite of this 30 percent protection, all the dyestuff plants, with three exceptions, perished. These three had a hard time. One of them was started in Buffalo, in 1879, by a very wealthy man. For sixteen years, fresh capital was poured into it and not one cent of profit was taken out. Then a small percentage was paid on the money invested, but, even up to date, the company has not realized a yearly yield of 6 percent on its investment since the commencement of business.

Another company has been in existence since 1882, but has never made money until this war broke out. This company manufactures ultramarine, the profits from which have enabled it to stay in business.

The third company could not stand the strain of German competition and sold out to a German firm in 1899, since which time it manufactures a few colors and uses its buildings as storehouses.

Nearly all dyestuffs of commercial importance were invented by Germans. The patent concession gave them a monopoly upon their inventions for fourteen years. The prices permitted to be charged for these patented dyes were so arranged that during the life of the patent the profits realized would repay the price paid for the original plant. At the expiration of a patent a plant costing at times as much as one million dollars would then be placed on the books as valued at one mark. Let me cite a concrete example. Auramine, a yellow dyestuff of great beauty and strength, sold at an average price of $4.48 during the life of the patent. When the patent expired, the price in the United States became 48 cents, and any one who cared to manufacture it was free to do so.

Did any one in the United States take it up? No, decidedly not. The American manufacturer would have been compelled to build a plant costing perhaps a million dollars. This would have meant an overhead expense on the plant of one hundred thousand dollars. The manufacturer would have been further handicapped by his lack of experience (which the German firm gathered in working the process fourteen years) and the chances are that it would take him several years before he would have been able to get the same great yields, or equally good ones, as compared with the German. The price of forty-eight cents was fixed upon by the Germans because they knew that there was no chance at this figure for the American to compete successfully in the manufacture of the product.

It was the usual habit of German dyestuff manufacturers, when they saw that a dyestuff was made successfully in the United States, to undersell in our market, when necessary, even at prices below the cost of production, and to continue doing this until the American manufacturer was forced to discontinue. As soon as he was out of the market, the price would be raised, even to above that which originally ruled. What took place in the United States took place in other countries as well. The German government has thus, through the dyestuff manufacturers, pursued a relentless fight against other nations in their building up of a dye industry.

The activity of German dyestuff manufacturers has been so thorough that they induced certain of our own manufacturers, who needed dyes in their business, to exert their influence to keep the tariff as low as possible. The foreign manufacturers maintained that dyestuffs should be considered raw material, and that it was therefore to our own manufacturers' interest to keep the tariff low. Most of the latter accepted this narrow-sighted policy and did not wake up to the results of their action until the war broke out and they were cut off from their usual sources of supply. With the beginning of the war, a million American workmen were thrown out of employment, for this number is employed in industries to which a continuous dyestuff supply is absolutely essential.

From what I have said you will understand the German government's interest in the development of huge dyestuff works.

Importance of Benzol and Toluol

Now, let us see what happened when the war broke out.

A general order was given in Germany that all dyestuff production should be discontinued

at once and that the factories formerly interested in this should immediately follow the program which had been mapped out years ago, whereby every vat, every tank and kettle was to be rearranged, according to predetermined plans, and the manufacture of certain explosives commenced. A comprehensive plan for all this had been worked out in peace times, and so it was known to the pound just how much of the different explosives could be made in every factory that had previously made dyes. Moreover, all these factories had, of course, large supplies of crude material on hand—just as every factory doing a large business must have—all of which could now be worked up into some form of explosive. It is readily seen what a tremendous advantage Germany had in this ability to convert, at almost a moment's notice, great plants into explosive factories capable of large output.

Benzol and toluol are the chief raw products of the explosive industry and are derived solely from the distillation of coal. The German dyestuff manufacturers have agreements with the coke-oven men for these supplies and the government determines the quantity of benzol and toluol which is to be carried in stock, its method of storage and its location. If the coke-oven men do not live up to their contracts the government steps in (through its general staff) and sees that they do. It also controls the output, and in times of war requisitions the ovens and determines for what purposes benzol and toluol may be used.

These two products constitute perhaps the best needed for the manufacture of explosives, but other raw products are also of great importance. Almost any organic body containing a hydrogen atom or atoms which may be replaced by the nitro-group can be converted into an explosive. Glycerin, starch, certain types of sugar, cotton and many other substances may be used in this way. To be of value as raw material for the manufacture of explosives, almost unlimited quantities must be available. Glycerin and cotton, in ordinary times, answer this requirement, but since the war both have been declared contraband, with the result that they have become scarce in Germany. Glycerin has been used for years for the manufacture of nitroglycerin, but cotton has come into use only recently for the manufacture of nitrocellulose, a very powerful explosive.

Why Wood-Pulp Has Advanced

England always declared in favor of and insisted upon cotton being considered noncontraband, but she has changed her mind since the present conflict started and has insisted since that it should no longer be classed as noncontraband. This change of attitude has been severely criticized, but in passing judgment we must not forget that conditions have changed and that cotton is now a raw product which may be used for the manufacture of explosives. Germany recently made a proposal to the United States to send over a cargo of dyestuffs in return for a cargo of cotton. As England, through her fleet, has command of the seas, her consent to this was necessary. Diplomatic negotiations failed to bring it. Germany, however, was not greatly disturbed when the negotiations fell through. For some time past, German chemists, at the instigation of the general staff, have worked on substitutes for cotton and have discovered in wood-pulp a product which, while not as good as nitrated cotton, still gives very satisfactory results. The available supply of wood-pulp in Germany has been requisitioned, and an order has been given to limit the size of all newspapers. An old newspaper has to be returned before a new one is issued. The price of wood-pulp has risen since this order, and, in all probability wood-pulp will shortly be declared contraband.

Glycerin is another product which, on account of its use in explosives, has become very scarce and expensive. The ruling price before the war was in the neighborhood of twelve cents per pound; now it is fifty-two cents a pound, and there is very little obtainable at this price.

The Invaluable Nitrogen

Germany has also always striven to bring about conditions within her own confines which would enable her to have available at any time all the raw materials needed for explosives. As I have pointed out, nitrogen compounds are the basis of all explosives, and it is absolutely essential that unlimited supplies of nitrogen compounds be available. Germany met this problem by perfecting methods of obtaining nitrogen products from the nitrogen contained in the air. This work was also suggested and developed through the general staff.

Formerly Chili saltpeter was the basis of all nitrogen compounds, and as this salt could be obtained only from Chili, Germany realized the absolute importance of her becoming independent of all other nations in this essential product, without which she could not conduct a war of any duration.

To obtain nitrogen products from air, a source of cheap electric energy is essential. On looking over the ground, Germany found that the cheapest sources of electric energy lay in the waterfalls of Norway. She established in consequence large industries for making nitrogen products there and then shipped these products to Germany. After the war began, Germany realized that it would be impossible for her to obtain the nitrogen products which she was making in Norway, in consequence of which she immediately started six plants on the Rhine. Here coal is coked and the distillates are used for making explosives, while the gas produced in the process of coking is used in gas engines, which in turn, are coupled to huge generators for making the electricity required for the manufacture of the nitrogen compounds necessary for the explosives out of the nitrogen in the air. At one stroke, therefore, she obtains not only her distillates, such as benzol and toluol, but also the nitric acid which is used for nitrating these products to make the smokeless powder, the nitro-toluol, etc., which constitute the modern sinews of war.

When the army of occupation entered Belgium, over one hundred experienced coke-oven men were taken along to operate the coke ovens of the captured country, so that the benzol and toluol obtained as by-products from these could be properly made and sent to Germany for the manufacture there of explosives. Solvay, the Belgian, who perhaps has done more than any other one man to discover methods for the recovery of the by-products of coal distillates, was seized by the Germans and held as a hostage.

From what I have said, you will see that the preparedness program of Germany is a comprehensive one. It may perhaps teach us also how important, if not absolutely essential, is the development of chemical industries in the United States if she is ever to be prepared to meet a foreign foe.

Germany with her large guns capable of throwing a projectile twenty-six miles would be powerless before an enemy if these guns were without the propelling power which is supplied by means of explosives. As a *sine qua non* of preparedness alone, were there no other reasons for it, the United States should begin to develop her chemical industries. How she can best do this will require much thought and study. Our chemical industries, which have never amounted to much until this war, need to be encouraged and the government must in some way devise means for the production of all the explosives that may be necessary within her own boundaries. The training of men for the army and navy is but the smallest part of a program of preparedness. The building up of a chemical industry which can supply the wants of an army and navy in case of war is a far more difficult one.

Germany has, at the present time, over four hundred million dollars invested in her dyestuff industries. In the United States about three millions were thus invested before the war. These and similar facts make it easy to see that unless the government lends a hand it will be impossible for the United States dyestuff industries, with their three millions of capital, to compete with the four hundred millions of Germany. Years of experience have, moreover, given German manufacturers a tremendous advantage over us. It will take much ingenuity and more hard work on our part to equal their outputs in quantity, quality, or price. The matter of differences between wages in Germany and in the United States will not be the great item, but the other things of which I have written will.

If preparedness is to be taken seriously, the United States needs to study the subject from angles which she has thus far ignored.

Puerperal Eclampsia

III. The Treatment of Eclamptic Convulsions

By William Rittenhouse, M. D., Chicago, Illinois

Professor of Obstetrics, Loyola University

[*Continued from page 412, May issue.*]

TWENTY-FIVE years ago, the treatment of puerperal eclampsia was as unsatisfactory as that of the albuminuria which led up to that condition, and despite all our measures the albuminuria of the pregnant woman too often resulted in eclampsia, and then, no matter what our treatment, the eclampsia too often ended in the death of the victim. Although many remedies had

been suggested, medical men were filled with a feeling of helplessness when confronted by this calamity.

Forty years ago, in one of the worst cases of postpartum convulsions I have ever seen, seventeen convulsive seizures occurred in the twenty-four hours following delivery. The doctor, one of the best of that day, did little in the way of treatment, except trying to prevent the woman from injuring herself. The patient recovered and is alive today; however, many of the victims were not so fortunate.

The pessimism with which this subject naturally was regarded by the profession has not altogether disappeared in our day. Less than five years ago I heard a teacher of obstetrics assert that in the face of puerperal eclampsia we are practically helpless. This attitude, however, is no longer justified in view of the gratifying results that are being attained by presentday rational treatment. An intelligent trial of the veratrum treatment, such as will be outlined further on, will, I believe, convince any fair-minded man of its very great value. True, I have heard obstetricians declare that they had tried this treatment and it had failed, but close inquiry in every instance disclosed the fact that the cause of failure lay in the dosage and the method. Similarly, the results in the first two cases in which I used veratrum were not satisfactory for the very same reason. The secret of success lies, first, in administering very large dosage of the drug, and secondly, in following strictly the precautionary rules laid down for guarding against veratrum-poisoning.

Some of the Methods of Treatment in Vogue

It may be of interest to consider briefly the principal methods of treating puerperal convulsions that thus far have been employed; namely: active catharsis with some quickly acting drug, such as croton-oil; rectal administration of bromides or chloral hydrate; hypodermic injections of morphine, also of pilocarpine; inhalation of chloroform; blood-letting; forced delivery; and, lastly, the hypodermic use of veratrum viride. While it may be admitted that all of these are based on more or less rational grounds, they differ greatly in effectiveness, and, moreover, some of them are fraught with danger.

As to croton-oil, its use produces results that are good, so far as they go; but its value is too limited for a condition so serious as eclampsia. As an adjuvant to other treatment, it has a certain value.

The same may be said of enemas of bromides or of chloral. The sedative effect of these two drugs is desirable; if given in sufficiently large doses, however, they are so irritating to the rectum that they are expelled before absorption can take place.

A single hypodermic injection of morphine in moderate dose is permissible at first, for its sedative effect, until other measures can be instituted. It reduces the arterial pressure, and to that extent is helpful; but it is generally regarded as doing harm by its narcotic properties if given in larger amounts. A small dose of hyoscine, morphine and cactoid is, in my opinion, preferable to morphine alone.

Pilocarpine has been highly praised by some writers, and as vigorously denounced by others; to a certain degree, both sides are right. It is valuable, but dangerous; and its dangerous effects are less controllable than those produced by veratrum. Before I had learned the value of veratrum, pilocarpine was my mainstay in combating eclampsia, but I spent many an anxious hour watching my patients under its influence. The diaphoresis produced by it is very marked, and the bubbling râles in the lungs give evidence of internal diaphoresis besides the external, and suggest the danger of drowning the patient in her own secretions.

Administering chloroform by inhalation during an eclamptic seizure is very generally practiced, but I have always felt that this expedient is accorded more credit than the facts warrant. Indeed, I think its chief value consists in impressing those who are present.

Let us look at the facts for a moment. A patient is seized with a convulsion. A chloroform-mask is placed over her face, and in a few minutes the attack begins to subside. Naturally, the chloroform is credited with having stopped the fit. But, has it really done so? The seizures are self-limited, rarely lasting longer than three minutes, when they stop, whether chloroform was given or not.

When we consider that, under favorable conditions, it takes from fifteen to twenty minutes to bring a patient under chloroform-narcosis, it is pertinent to inquire how much chloroform she will take into her system inside of three minutes, and when respiration is as nearly suspended as it is during an eclamptic seizure. If it were possible to foretell when an attack is going to take place, then possibly we might forestall it by means of chloroform; but, after the patient has come out of one seizure, we have no means of

knowing whether the next one will occur in ten minutes or in two hours, or whether there will occur another convulsion at all. So, the prophylactic use of chloroform is not practicable, while, as a means of stopping a seizure, I cannot say that I ever have seen it do any good.

For all that, I do not believe that the chloroform does any harm if given with reasonable care, and, therefore, feel that resort to it is justifiable by reason of the effect upon the bystanders as suggested above. Nor do I consider this to be quackery. The sight of a person in convulsions is so terrifying that laymen are unconvinced when told that little can be done during an attack beyond preventing the patient from injuring herself. When people see chloroform administered and then in a few minutes see the attack pass away, they feel that the doctor is doing something. The point I wish to make is, that the doctor himself should have no illusions upon the subject, and should realize that his effective work must be done between the attacks by other means.

Bloodletting has often been suggested, and occasionally practiced, with the idea of preventing the recurrence of the spasms. Theoretically, this would seem rational, as it causes reduction of the blood-pressure; and this is one of the things which it is desirable to accomplish. But bloodletting is no longer popular as a remedy for anything, and, possibly, for good reasons. It is a question whether depriving a patient of a large amount of blood in a great crisis may not have drawbacks that outweigh any temporary benefit. There seems to be no doubt that the preponderance of opinion at present is, that diluting the blood with physiologic salt solution is more useful in controlling the spasms than is the removal of part of the blood.

The Veratrum Treatment

For the past eighteen or twenty years, I have found veratrum viride so satisfactory in combating eclampsia that I have come to depend upon it almost entirely. So greatly, however, does success depend upon the manner in which this drug is employed, that a careful observation of certain strict rules of procedure is absolutely imperative. To attempt to force results in eclampsia by means of this powerful remedy without such rules clearly outlined in one's mind, would be as reckless as to undertake a laparotomy without possessing a thorough knowledge of anatomy.

I am not asserting that the method which I am about to describe is perfect; it may be capable of improvement, and I shall cordially welcome any suggestions in that direction. My method is an evolution, the product, to some extent, of lessons learned from unfortunate errors and failures, while for some of its features I am indebted to a report of 38 cases, as published about a dozen years ago, by Dr. Lapthorn Smith, of Montreal.

And these are the main points to be observed: (1) Very large doses; (2) hypodermic administration only; (3) recording the pulse every ten minutes. Let me consider these in the order named.

The Proper Dosage of Veratrum Viride

The dosage should be large enough to bring the patient thoroughly under the influence of the drug within one hour, but, yet, not so large as to produce veratrum poisoning. Too little of it means failure, while too much may prove disastrous. The difficulty of regulating the dosage is enhanced by the variation in strength of the common tincture of veratrum viride as sold in the drugstores. For this reason, I have for years carried in my obstetric bag a small bottle of Norwood's tincture. This preparation I have always found uniform in strength; but the doctor must be warned that it is five or six times as strong as the ordinary U. S. P. tincture and, hence, has to be used with care. The alkaloid veratrine would be ideal, so far as uniformity is concerned, but whether it would give the same results as the tincture in controlling the convulsions I do not know, never having used it. If any of your readers have had experience in this direction, I certainly should be glad to hear from them.

[Many readers of CLINICAL MEDICINE have reported experience with veratrine in eclampsia, and those who use it are enthusiastic advocates of this alkaloid.—ED.]

I am in the habit of giving 5 minims or 10 drops of Norwood's tincture for the initial dose, and repeating this every half hour or every hour, according to the frequency of the eclamptic seizures, until the pulse comes down to 60 per minute or the attacks cease.

The uncertain strength of the ordinary tincture was illustrated in a case I saw three years ago. The doctor in charge had given 15 minims of the U. S. P. tincture, and when I saw the patient two hours later, her pulse was down to below 30, with the other symptoms of overdosage in proportion. We had

rather an anxious night of it, although we did bring her out all right. It is possible, of course, that idiosyncrasy also played some part in this instance. It is a wise precaution, therefore, not to make the initial dose too large, rather depending upon repetition at shorter intervals for results. By watching the pulse very closely, the danger of overdosing can be guarded against.

Next: administration of veratrum viride by mouth, when given for eclampsia, should not be considered for one moment. Absorption from the digestive tract is too uncertain to be depended upon in giving a drug of such potency; while, when injected hypodermically, we can be reasonably sure that the rate of absorption will be fairly uniform. Experiment shows that, when used in this way, most drugs reach their maximum effect in about thirty or thirty-five minutes; but we must always bear in mind that the *maximum* effect of a drug is not the same thing as the *total* effect, for, a gradually decreasing absorption is going on for some time after the maximum has been reached. For this reason, if we give a second dose thirty minutes after the first one, we may get a greater effect than we want, unless we keep the above fact in mind. Unless the convulsions are recurring very frequently, it is better to allow an hour to elapse before repeating the dose. Of course, if the convulsions do not recur, then the dose need not be repeated.

When a patient has had too much veratrum, the two most striking symptoms are, the great depression of the pulse and the extraordinary secretion of gastric mucus. In the only two cases of this kind that have come under my observation, the patients vomited almost continously for two hours, bringing up easily enormous quantities of perfectly clear odorless mucus.

Thirdly: The administration of physiologic salt solution, either subcutaneously, by rectum or intravenously, is regarded by some as a valuable aid in controlling eclampsia. I am not certain as to its value.

Where the convulsions occur during labor, they usually cease with delivery, and this has led some obstetricians to advocate forced delivery in practically every case, even in those where labor has not begun. In my opinion, forced delivery should be resorted to conservatively. If labor is in progress, it is justifiable to aid dilatation or even to employ the forceps, to shorten the labor, provided that these means be used with sufficient moderation to avoid injury. If, however, convulsions occur before labor has set in, forced delivery should not be considered until it has become certain that they cannot be controlled with veratrum viride.

[*To be continued.*]

The Treatment of Syphilis

By A. B. Cloak, M. D., Freedom, Pennsylvania

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AMONG the many diseases with which we have to do, syphilis probably stands first in importance with regard to drug-treatment. It is one of the few diseases for which we have a specific remedy, hence, is one of the few drug-curable afflictions.

But, possessing and administering the specific drug does not necessarily nor always mean a cure. The good results depend on the proper use of the remedy.

The treatment of syphilis, therefore, resolves itself into two classes; namely: the periodic symptom-relieving, nonmethodic, noncurative treatment; and the persistent, scientific curative administration of the specific or specifics.

The drugs of major importance and considered curative in effect are: mercury, potassium iodide, and salvarsan. Of minor importance and used as aids to the major drugs, are: stillingia, echinacea, phytolacca, xanthoxylin, iron, sodium cacodylate, and a few others.

Vigorous systematic treatment should begin as soon as the diagnosis is made. In a large percentage of cases, the diagnosis can be made from the appearance of the primary lesion, together with the history. When in doubt, on account of vague history and unusual appearance of the lesion, a search should be made for the spirochæta pallida, the discovery of which in the lesion makes the diagnosis a certainty.

A quick and genuine cure usually depends on prompt and vigorous medication before the spirochetes have entrenched themselves in tissues not permeated by the drug or drugs, as our present methods depend more

on the destructive power of remedies, than on the production of antibodies.

Ten years ago, it was taught that treatment should not begin till the appearance of secondary manifestations. By this delay, the spirochetes are deeply imbedded, and protection walls about groups of organisms make the chance of cure less with each day of delay.

The Dosage of Salvarsan

Take a case of syphilis of recent acquisition, no contraindication being present. Give 0.6 Gram of salvarsan intravenously; repeat the same dose at intervals of six to ten days till five or six doses have been given, then give hypodermics of salicylate of mercury, in increasing doses, twice a week for a period of three months. Stop treatment for eight weeks, then have a Wassermann test made. If positive, repeat the same course; if negative, have a Wassermann test made at intervals of three months, till negative reactions have continued for a period of one year.

Employ the same series of salvarsan injections for infections of longer standing, with the difference that the administration of salvarsan should be preceded by a thorough course of mercury. In recent infections, one such course is usually sufficient. The older the infection, the more courses are required.

Salvarsan exerts its influence by actual contact with the spirochete, and, if a sufficient amount of it comes in contact with every spirillum in the body, then all are killed and the patient is free of luetic infection.

Ehrlich's original idea was, completely to sterilize the patient with one dose; but this proved to be practically impossible in most instances, hence, the administration of one dose is probably worse for the patient than giving none at all. The single dose kills a large number of the spirochetes and cripples the natural tendency of the body-cells to produce antibodies, hence, the spirochetes escaping create havoc in the body, because of lack of antibodies.

Thus we see the necessity for repeating salvarsan injections at short intervals, till there is a likelihood that the spirochetes have all been destroyed, using mercury afterward, to insure destruction of the few that might escape by reason of being imbedded deeply in some resisting tissue and not being reached by the salvarsan.

Technic of Intravenous Administration

It is generally considered by most authorities that the intravenous administration of salvarsan is preferable to any other. It insures a more rapid and thorough effect, quick elimination, and is much less painful and disagreeable to the patient.

Dangerous and disagreeable reactions are usually due to faulty technic. It is important that only freshly distilled water be used, slightly alkaline in reaction, and about at body-temperature. The arm is prepared with the usual aseptic technic; the turniquet is applied above the elbow, bringing the median basilic vein into prominence. Then, with the warm physiologic salt solution in the container and running through the needle, insert the needle into the vein, removing the turniquet as the needle is inserted. A steady flow of the salt solution established and no local swelling produced shows the needle to be in the lumen of the vein. Then the salvarsan solution, previously prepared, is added to the salt solution already in the container. Generally 150 Cc. of salt solution to 0.6 Gram of salvarsan is sufficient, and, if the needle clearly is in the lumen of the vein and there is no leakage and a slow, even flow, 10 to 20 Cc. of solution is sufficient.

Some of the Accidents

Common accidents and reactions following the administration of salvarsan are:

First: The reaction caused by the organisms contained in old distilled water. The dead organisms and toxins introduced into the blood with the salvarsan produce a chemical compound highly poisonous. The result is, an elevation of temperature, chills, vomiting, headache, and sometimes death; also, arsenical poisoning, because of the breaking up of the drug by the water composition.

Second: The socalled Herxheimer reaction, occurring in two to four days after administration, consists of swelling and consequent pressure effects in locations where the spirochetes exist in great numbers. When it occurs in nerve-centers or parts where nerves pass through a bony foramen, temporary paralysis and neuralgic pains are the result.

Third: Neurorecidive, occurring several weeks or months after the injection—supposed to be due to increased activity in existing lesions or lighting up of new lesions.

Fourth: A thrombus may be dislodged and do its characteristic damage.

Fifth: Admission of air into the vein and perhaps interference with the closure of a cardiac valve, with death resulting.

Sixth: Local swelling, inflammation and sloughing of tissues from allowing some of

the drug to escape into the tissues surrounding the vein. It is guarded against by allowing the salt solution to flow before placing the drug solution into the container.

Contraindications

There are certain general contraindications to the use of salvarsan; namely: heart-disease, nephritis, and brain syphilis. It may be used when these conditions are present, but the danger should be appreciated and extra precautions taken to guard against possible death.

Conditions in which salvarsan is especially indicated: (1) Abortive treatment, early. (2) Cases that show idiosyncrasy to mercury. (3) Cases upon which mercury has but little effect. (4) Positive Wassermann reaction after the long-continued use of mercury. (5) Local lesions, which make the patient a menace to his associates. (6) Malignant syphilis—prompt and full dose.

Neosalvarsan is less irritating, more convenient to use, and calls for a more simple technic, but it has been proved to be much less destructive to the spirochetes than is salvarsan. Also it is probably more toxic and more liable to be followed by accident.

Parasyphilitic Conditions

In the socalled parasyphilitic conditions, such as locomotor ataxia and paresis, it has been proven that the cells of the cerebro-spinal meninges have no selective action for salvarsan, and, hence it exerts no effect on the central nervous involvements when injected into the blood stream. Swift and Ellis, of New York, have instituted a method of intradural administration of salvarsanized serum.

Salvarsan is given intravenously in the usual manner, and after a time varying from a few minutes to one hour, blood is withdrawn from the vein, kept in a low temperature for a few hours, and the serum separated. Of this serum, 12 Cc. is mixed with 18 Cc. of salt solution; this is sterilized and, at body-temperature, is injected into the spinal canal, after drawing off a like amount of spinal fluid. Brilliant results have been reported from this treatment, but the full value of the method has not yet been definitely determined.

Potassium iodide has no specific action on the spirochetes, but is extremely useful in breaking down cellular deposits and eliminating toxins from the body. Its administration at suitable periods in the treatment of syphilis opens the way for the specific action of mercury or salvarsan and clears the system of collected poisons.

The development of tuberculosis is a factor to be guarded against in the treatment of lues, and it behooves us to keep strict account of the action of the various organs and the general cellular condition of the body. As aids in maintaining the general bodily health, we call to our assistance the before-mentioned accessory* antisyphilitic drugs: stillingia, xanthoxylin, phytolacca, and iron. The triple arsenates of iron, quinine and strychnine with nuclein, are very valuable. Do not neglect general hygienic measures, as baths, fresh air, and plenty of good food, ever keeping in mind that the destruction of the spirochete must not be accompanied by devitalization of the body of the patient.

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[In connection with this paper, read also Doctor Neiman's article, page 407 last issue; also the papers by Dr. G. Frank Lydston, published in CLINICAL MEDICINE in our issues of January, February and March, 1914.—ED.]

Dilatation of the Anal Sphincters

By CHARLES J. DRUECK, M. D., Chicago, Illinois

WHEN thinking of preparing this paper, I had misgivings about my taking up the readers' time with a rather trivial procedure; however, in looking through the textbooks on surgery and even those especially devoted to rectal diseases, I find only the briefest mention of this subject, or even none at all, while, further, I know that many otherwise well-informed general practitioners are uncertain as to the best method of going about it.

Divulsion of the sphincters, literally interpreted, means, to tear or rend asunder—and that is what usually occurs when the patient is chloroformed and the muscles are stretched by thrusting the thumbs through the anal spincter and dragging them sideways until they touch the ischial tuberosities. But such brutal traumatism is seldom necessary nowadays. What we wish to accomplish in the majority of instances is, simply to overcome the natural or the exaggerated

contractility of the sphincter, so that we may open the anus sufficiently for examination or operation. If this can be accomplished without inducing general anesthesia, it brings within the scope of office and ambulant treatments many cases that formerly were attended to only in the hospital.

It is my object to outline here a plan of treatment that in my hands has yielded thoroughly satisfactory results in properly selected cases, one which obviates the dangers of chloroform without adding any disadvantages or complications. As this method is applicable both to examination and treatment, I offer it as having a well-defined field.

What We Accomplish by Divulsion

Stretching the sphincters forms an important step in the treatment of most rectal diseases, because it produces certain anatomical changes and definite physiological results. Stretching the muscle also stretches the fine nerve-filaments in its substance and produces a paralysis of these fine twigs. The action is the same as is produced when stretching the sciatic nerve. Localized inflammatory products are broken up and as a result sphincteric spasm, pruritus, and hypersensitiveness are mechanically relieved. In many instances, pent-up secretions are thus provided free drainage.

If this traumatism is limited to the nerve-branches in and about the sphincter, the regeneration of the nerve soon occurs and the paralysis is only temporary. If, however, the larger nerve-trunks out toward the ischial fossa are injured, regeneration is more remote and it is possible for cicatrization and atrophy to occur in the muscle before new nerve-tissue is built up, so that paralysis more or less permanent will result as a consequence.

The Preliminary Examination

Every thorough examination of the rectum includes a digital exploration, and thus the introduction of the fingers puts the sphincters on sufficient tension to disclose many important conditions. The finger, thoroughly anointed with vaseline or olive-oil (not glycerin, because that stimulates the bowel to evacuation), is gently insinuated, with a boring motion (remembering the direction of the rectum), forward toward the pubes until the sphincters are passed and then backward toward the sacrum. As we know, when the finger touches the sphincter, the latter contracts spasmodically. If however, the finger is thereupon held firmly in position for a minute, the muscle again relaxes, when frequently the finger may be pushed in without difficulty. The sphincter now is slightly stretched, and the degree of contraction, or "bite," informs us of the tonus or irritability of the muscle.

This digital stretching is always essential in every new case before making the specular examination, because it not only demonstrates the condition of the muscle itself, but also discloses many diseased conditions that may be present, and thereby often enables the operator subsequently to dilate the sphincter instrumentally without causing much pain.

In newborn infants, stretching the sphincter with the obstetrician's little finger is one of the most powerful respiratory stimulants, while many times in older children the introduction of the syringe-tip acts as a sufficient stimulus to bring on defecation without giving an enema at all.

If in a given case the finger has been introduced and the sphincter and the rectum are found normally patulous, the anoscope or a speculum may be slowly introduced without causing pain and the lower rectum be dilated enough for examination or treatment. If, however, certain diseased conditions exist which have caused an irritable and hypersensitive sphincter, the muscles will be found to "bite" the finger abnormally, and then the anus needs preliminary preparation.

Producing Local Anesthesia

To overcome these conditions temporarily, we have recourse to local anesthesia, a condition that may be produced by a number of methods. Cocaine in weak solution may be used with perfect safety, provided the total amount of the drug used at any one sitting is less than 1-2 grain. By placing the hands on either buttock, the finger-tips resting close to the anus, the external sphincter may be gradually drawn open (everted) until half an inch of the mucous membrane rolls out. This surface is then sprayed with a 4-percent cocaine-solution to which has been added 1-2 percent of a 1 : 1000 adrenalin-solution. After the buttocks have been released, the anal canal is now treated by injecting with a short-nozzled piston-syringe 10 or 20 minims of the same solution. Then the patient is placed in a semi-recumbent position for about fine minutes, so that the full effect of the drug may be secured.

The adrenalin-solution in the mixture prolongs the anesthetic effect, limits the rapidity of the absorption of the cocaine, and lessens

the venous congestion that otherwise sometimes produces an annoying tenesmus lasting several hours following this procedure. It may be well to add that the solution should always be warmed to nearly the body-heat before being used, because warm solutions are more efficient than cold ones, Also, physiologic salt-solution, used instead of plain water, increases the absorbability of the cocaine.

After the expiration of five minutes, the sphinteric surface is fully anesthetized, but the muscle itself is not interfered with, and we are now ready to begin the instrumental dilatation just as well as if we were dealing with a normal, unirritated anal canal.

Kelly's Calibrater

Using what is known as Kelly's calibrater, this instrument is warmed to about body-heat and thoroughly anointed with any recognized lubricant, *except glycerin*, and then is gently pressed against the anus. By exercising pressure, say two pounds, the instrument is inserted with a boring motion. The sphincter can usually be dilated up to two inches in diameter in about five minutes. The pressure on the calibrater must be slight but steady. Any undue haste only excites spasm of the sphincter and retards progress.

If in the case at hand the sphincters are very irritable, it may be advisable at the first treatment to distend the fibers to only one inch, and then at each subsequent session slightly to increase the distention; the object being to stretch the muscle speedily to a diameter considerably larger than is ever produced by a fecal mass—which, in the natural evacuation of the bowels, is relatively slight.

Having dilated the anus as much as desired, the calibrater should be allowed to remain in place for ten or fifteen minutes, until the sphincteric grip is released. When thus the sphincter has been thoroughly dilated, the calibrater may be slowly withdrawn, the last half-inch of the instrument being withdrawn very slowly and crowded against the anterior quadrant of the sphincter. Firm pressure against the posterior wall of the anus with the examiner's free hand also prevents sudden spasm.

Occasionally it will happen that even after applying the cocaine a thorough dilatation is very painful at the first sitting. Should the patient complain of pain, the stretching must be diminished sufficiently to feel fairly comfortable, and the physician must content himself with only a partial dilatation at the first treatment. The treatments under these circumstances should be repeated each day, gradually increasing the dilatation until the muscle is relaxed sufficiently for all purposes.

With the advent of mechanical vibration, has come another method of producing local anesthesia in certain instances. A vibratode is made to vibrate, or oscillate, upwards of 6000 times per minute, and these tremors are transmitted to the nerves of the surrounding soft tissues. In selected cases, this process gives very satisfactory results; it must not be employed in inflammatory cases, however.

Case 1. Mr. H. S. complained of sharp, cutting pain in the rectum following defecation; also had itching at the anus and bowels were constipated. His anus was tightly contracted. Digital exploration was too painful to be satisfactory either to the patient or to myself. The anus was anesthetized with cocaine, as outlined above, and after waiting five minutes I completed my examination painlessly and satisfactorily.

When disease exists above the sphincters, this same method may be followed, and when the calibrater is withdrawn the anoscope or speculum may be introduced easily and without exciting spasm. The anal canal or rectum may be examined or treated just as if the patient were anesthetized, as plenty of room is obtained for treatment of diseases of the lower inch and one-half of the bowel.

In the treatment of internal hemorrhoids, ulcers, villous tumors or other conditions requiring minor operations or treatment upon the rectum, the parts can usually be distended sufficiently without a general anesthetic, but the dilatation must be performed slowly and patiently.

Value of Preliminary Digital Examination

In the early part of the paper I called attention to the importance of digital examination preceding the instrumental dilatation, because it furnishes the examiner precise information regarding the tone, or contractile power, of the sphincter.

If you can introduce your finger into the patient's rectum easily and without feeling the "bite," or spasm, of the sphincter, be very chary about introducing a speculum and dilating the anal canal, because what little contractile power is present may be easily dissipated and a permanent partial or complete paralysis result. For example:

A woman, at the age of 26 years, was delivered instrumentally of a large boy. The perineum was ruptured, but was promptly

repaired. She recovered and enjoyed good health, having complete control of the anus. Four years later, she was operated upon for hemorrhoids, and since that operation the sphincter has been completely paralyzed. The surgeon who operated informed me that he was positive that no undue traumatism was produced. I mention this case to show that, where the nerve supply of the sphincter has been previously injured, an instrumental dilatation may be fatal to good results; and hence, a previous digital examination is indispensable.

In operating upon the rectum, and particularly when it may be necessary to drag upon the parts, the nerve must be anesthetized as far back along its trunk as the traction will be appreciated, because a nerve may be perfectly numb at the point at which it is cut or clamped, but very much alive one-half inch farther on, and if this sensitive part is dragged when examining it will be appreciated by the patient as being at the nerve and because the same fibers are involved. Therefore, if in dilating the sphincter it is necessary to move or stretch the deeper nerves, especially if exudation or inflammation extends outside of this muscle, it will be necessary to cocainize the nerves thoroughly outside of this area. In such cases, infiltration of the deeper nerves is necessary.

Having discoursed at some length upon the advantages of dilatation and hinted at operating upon the anus under local anesthesia, allow me to remind the reader that this method has its limitations. While cocaine or vibration may relieve the sensations of pain, they do not remove the fear or terror of being operated upon, and a highly nervous or excited patient may not be able to keep quiet or calm while he is conscious and realizes that the surgeon is at work. In a number of such cases, I completely failed to obtain any reasonable benefit from cocaine. In selected cases, however, I believe this method brings within the field of office work many patients who otherwise would be confined to their bed for several days or weeks, and also those who object to an anesthetic or in whom its administration would be inadvisable and who, consequently, continue for years with very painful and annoying ailments which might be promptly and easily relieved by their doctor.

A Discussion of Capital Punishment

By Two Convicted Criminals

A Defence of Capital Punishment

By John Lacelaw, New York
A Prisoner in the New York County Penitentiary

DR. WILLIAM HENRY MOYNIHAN, chief of medical staff at the New York County penitentiary, recently brought to the editorial room of *The Prison Observer* (our institutional paper) the April and May (1915) issues of your really interesting publication, and called our attention to the articles from the pen of Louis Victor Eytinge, a life-prisoner at the Arizona state prison at Florence, in which he strongly and very ably advocates the abolition of the death penalty.

I, too, am a prisoner and in a position to appreciate fully much of your correspondent's observations on crime and criminals; and it may be possible that because of this circumstance my own dissenting views may be accorded the additional weight that goes with my own present position. I may here remark that this added weight, in my opinion, is anything but convincing regarding the question, but, on the contrary, must, considering the force of the law of self-preservation and other self-interest, operate in just the opposite way.

In the prison from which I write, there has recently been inaugurated a great change in the methods of handling the inmates, brought about through the fortunate circumstance of the appointment to the wardenship of Mr. John J. Murtha, who, as the readers may know, has substituted an enlightened, humane administration for the truly brutalizing methods of former days.

As Mr. Murtha is working it out, *the reformation of the prisoner* is the true function of the penal institution. By an impartial administration of equal justice to all, and a system of extended privileges, dependent on the good conduct of the recipient, he has built up what amounts to a concrete example of the beneficent results of the highest ideals in penology. Here I have learned that there is plenty of good in every man, if it only can be brought to the surface; and I have further learned that a prisoner, no matter what his crime, is deserving of his liberty just as soon

as his ideas of right and wrong are properly adjusted to conform to the laws of society.

There still remains, however, a legitimate place for the law of capital punishment, when it is applied, and applied only, to exactly that class of individuals mentioned by your correspondent as having told him that they never would have committed their crime had they thought they were going to get a life-sentence. Of course, they wouldn't; and just as soon as you make a life-sentence spell a real imprisonment to the end of life, you have the only adequate substitute for capital punishment. But, can you make a life-sentence really hold for life? I do not know, for, as long as human nature remains what it is, we always shall have to count on the pardon and the escape.

The Extreme Penalty Should Be Retained

Practically the only kind of murderer that suffers the death penalty nowadays is the one against whom has been proven, beyond the shadow of a doubt, premeditation and deliberation in the commission of the crime. These are the class of persons who coolly figure beforehand the chances of not getting caught. Now, take away this penalty, and how many more would essay the role for gain or their own personal vengeance when they can calmly figure out, according to their ability, all the uncertainties of a socalled life-sentence? It would appear that the deterrent effect of the penalty is actually established by the testimony of the prisoners referred to by Mr. Eytinge.

Murder statistics are useless as a basis for conclusion, unless you can give the exact details. To say that so many murders were committed and that there were only so many legal executions, proves nothing, except that there are an entirely too large a number of killings through impulse and passion. The ratio of lynchings to legal executions bears no true relation to the subject; neither does the large increase (if such be the case) of murder in time of war. These conditions point simply to the inadequacy of the law in the particular localities affected. It is apparent that law of sufficient strength would be the true remedy.

The proposition to abolish capital punishment together with the already wholly ineffective system of life imprisonment, if carried to its legitimate finality, would bring us back to exactly that primitive condition of summary vengeance—the eye for an eye and tooth for a tooth idea. On the other hand, leave one or the other, and *make it certain*, and the kind of murder known as first-degree would be reduced to a minimum, or, in other words, confined to those persons who stood ready to give up their own lives on the gallows or in prison (a far worse fate) as the penalty of the crime. How many would there be?

To infer from the statistics, as your correspondent would have us do, that legal executions increase murder, is, to ignore many of the surrounding facts. We might go to China, where piracy is punishable by death. Wholesale executions often take place, but nobody would claim there is any appreciable increase in this form of crime, when, if we follow the line of argument submitted, it should now be an almost universal and recognized calling.

The parental idea of the state (answering our correspondent) is exactly the same as the parental idea of the physician toward his child, that is, to use to his utmost all means within his power to correct the faults he sees; still, nobody will deny that there is a final point which, when reached, fully justifies him in turning his child from his door for the protection and wellbeing of the rest of his family. A man's action, in this case, it should be remembered, is final and complete. The state exercises the same supreme right in the only way that it can, by execution, in the absence of irrevocable life imprisonment. The physician separates himself entirely from his child-patient, and the state has the same right. That three-fourths of the wardens are against capital punishment is but natural, but proves nothing. Certainly, nobody, if he can avoid it, would want to perform such a duty as executing a fellow man. The real wonder is, that there actually are (if there are) one-fourth their number who are willing to carry out this law.

Deserving Another Chance. Hope for Change of Heart

So much for the affirmative side of this question—and I regret very much that it is in controversy with a brother in durance vile, to agree with whom it would be both easier and much more pleasant. The editor of this journal mentioned, in his head-note, that Mr. Eytinge writes letters that "pull," and his article bears testimony to the truth of this statement. He pulled it from me in spite of my intentions, under the circumstances of our common predicament, to remain silent. However, like my comrade, I am glad I "got it off my chest," and I have no fear he will not recognize an honest dif-

ference of opinion. At the same time, I have no hesitation in saying that in every respect Mr. Eytinge belongs to the class previously mentioned by me, men who richly deserve being accorded another chance in life. To this end, my humble services are his to command.

It is a real pleasure to record my hearty endorsement of all that he writes on the question of castration and vasectomy, both of which measures strike me as repugnant in the extreme and positively inhuman. It appears that but a short three years back Mr. Eytinge himself was advocating these penalties just as strongly as he now opposes them, but now is very thankful that he had sense enough to change his views. There is hope here, and it may be that he may yet see a new light on the capital-punishment question when it concerns the one who coolly takes the girl he has ruined out in a row-boat and leaves her dead body at the bottom of the lake, in order that he may be free to ruin another; or the high police official who influences a criminal who is dependent on him for his very liberty to shoot down a gambler who has threatened to expose his official corruption.

In like manner, my heart is with him in the battle against King Alcohol, on whose doorstep I squarely lay my own failure to make use of the many opportunities that had come my way. Happily I have reached a point where the hip-hip-hooray side of life has lost for me its onetime fascinations. However, I approve of the action taken by Warden Allen, of Joliet, for the reason that a vote of penitentiary-prisoners, calling for government action on the liquor-question, would not be fair to those who use liquor moderately and keep out of trouble also. There is at present a crying need for government supervision over the manufacture and sale of all intoxicants, to the end that the rank, adulterated poisons, that masquerade as whisky, wine or beer, may be obliterated.

Yes, it is well, as your correspondent points out, that the illustrious citizens mentioned by him were not made the victims of legal castration. The names of Col. Robert L. Wolfe, of Columbus, and W. A. Hawkins, of Detroit, are, indeed, shining examples of how a misstep may often bring out in a man all the most desirable traits of character, to the benefit of himself and the everlasting benefit of that same society that once found it necessary to send him away.

The heredity- and environment-question, as factors in producing criminals, will always be a fruitful cause of honest differences as to their relative responsibility. My own opinion is, that environment plays the larger part, but by a smaller margin than Mr. Eytinge would have us believe. We cannot get away from the fact that there is such a thing as class in humans; and class, you know, generally tells. One person has a natural leaning to right thinking and right living, while another comes into the world with natural inclinations that are just as certainly pointing in an opposite direction. The same home influences and general environment of life would, surely, have a harder task keeping the one straight than the other, with the danger of a fall being always more imminent for him whose parental characteristics are faulty.

Socialism comes next. If this highly recommended panacea could do all the things claimed for it, most of our troubles would disappear. However, my study of this question has led me to the conclusion that it is absolutely impracticable, as long as human nature remains as it is. Its extreme claims in regard to the great questions of our times are, in my judgment, purely mythical. The moderate school of socialism advocates many reforms that, if carried through gradually, would work for truly ideal conditions of life.

An Arraignment of Capital Punishment

By Louis Victor Eytinge, Florence, Arizona
Life-Prisoner in the Arizona State Prison

WHAT? Reply to Brother Lacelaw? Surely—and thank you for the courtesy.

First: I would ask that every reader go over his paper once more and definitely establish what I must deny or controvert. Then, may not one ask whether Mr. Lacelaw has either advanced or denied anything? To my mind, his presentation is so inconclusive as to leave no fixed impression, no saliently striking feature to be removed. Yet, even so, let us try to undo that little which he has attempted to prove.

Mr. Lacelaw asserts that, as a prisoner, his "dissenting views may be accorded the weight that goes with his position." Frankly, I flatly deny his very *right* to speak, as a prisoner, for prisoners. His institution—Blackwell's Island—is a county workhouse for misdemeanants, petty offenders, while the real violator of the law goes to Sing-Sing, Auburn or like place. As a mere petty

offender, Mr. Lacelaw can not possibly have behind him the experience of the position that gives the right to speak authoritatively or even as a prisoner!

One might be inclined to prove my opponent's incapacity to speak on this subject by merely quoting his third paragraph, in which he tells of having learned—only very recently—through the few months of Warden Murtha's régime, that "there is plenty of good in every man, if it only can be brought to the surface." Wonderful! A discovery as old as the hills! Yet, my critic has but found out this philosophy of life since Warden Murtha has "substituted an enlightened humane administration." Mr. Murtha had been in office but three or four months when Lacelaw prepared his paper, yet, here we have a final judgment on his work in so short a time!

Conceding all the good that Murtha has done—and I grant this freely—yet, it seems ill-advised for any New York prisoner to set up as the highest ideal in penology a new warden, while the man responsible for the furthest advance in prison efficiency rests under a legal cloud—while the one man whose sincerity cannot be questioned is made the victim of as damnable a bit of political chicanery and character assassination as ever New York's political rottenness revealed.

That man is Thomas Mott Osborne, and to him should go all possible credit for all New York's prison-progress, as the prophet who prepared the path. Until New York shall have atoned for her shame, it ill becomes any prisoner hoisting any other warden as the "god out of the machine."

Capital Punishment Not Deterrent

However, sticking to the subject-matter, I submit that my opponent proves my own position, that capital punishment is not at all deterrent, when he admits that certain offenders would *not* have committed their murders had they thought they were to get a *life sentence*. Doesn't this prove life imprisonment more efficacious as a deterrent? When he admits that "life imprisonment is the only adequate substitute for the death penalty," I feel inclined to quote the words of the Great Condemned, who met His death penalty on the Cross—"Thou hast said it."

Still, my critic goes ahead and adds the proviso that as long as we have human nature we still shall have the pardon and the escape. Granted, and as long as we have human nature, there will be error of judgment and accused innocence; and, if there be not accused innocence, let me give as witness Chief Baron Kelley, who stated that in his own experience as chief of the assizes no less than twenty-two innocent men were sentenced to death, seven of whom were actually executed. I wonder whether it be not better to have some guilty "lifers" earn a pardon than to have some innocent one earn the gallows! Do you, doctors, not vote for a life sentence, which gives a chance to rectify judicial error, rather than the death penalty, which destroys that which all the physicians in the world may not restore—*life?*

Some Pertinent Statistics

But, I want to protest, with all my force, against the insinuation that with a life sentence the guilty will escape through pardon—I protest against this as a silly exaggeration due to extreme ignorance of the subject. It would be well for my opponent to become versed in the statistics of this question of life-term prisoners. I am prepared to prove that more than 75 percent of lifers either die in prison or are transferred to asylums because of insanity.

Let me cite merely one state—one which has recently abolished capital punishment, and because of which fact the figures are fresher. These data show that in the state of Tennessee 89 percent of lifers die in the penitentiary, that only 5¼ percent are pardoned, and 5¾ percent have their sentences commuted. Let me remind my critic that of the pardons granted lifers these are, in many cases, but the privilege to breathe a few days and to die "outside the walls"—the dearest desire of every prisoner. Let me remind Mr. Lacelaw that in many states a lifer is not eligible to parole, save in from fifteen to thirty years, and, in his own state, after twenty years. How many men are there that are able to stand this living death, so long waiting, even in the best of prisons? I'm glad that Mr. Lacelaw brought in this sentimental exaggeration, for it gives one an opportunity to dispel an ignorant conception so commonly held.

And even so, has not Mr. Lacelaw pointed to the present writer as one who merited such parole or pardon? If there be *one* exception, then may there not be hundreds, considering the many thousands confined in our prisons? Again, if Mr. Lacelaw were to ask any reputable physician, he would find that the crime under which I myself am suffering is one that it not only is highly

improbable but practically impossible to commit; yet, I stood in the shadow of the gallows! And how many more may not there be who merit an equal vindication, yet, who have gone to a gallows' grave, convicted by even less evidence?

The downright truth is, that double, treble, yes, twenty times as many men escape all punishment by virtue of legal technicalities than through pardon, this being especially true in New York. However, Mr. Lacelaw is silent on this point. Make justice *certain*, as we say in the English manner, and our homicides will drop in number to a proportionate number—to less than one-fourth of our present rate. *Making justice sure will help to cure.*

What Figures Prove

Mr. Lacelaw sweeps aside, with a light wave of his hand, all the figures and statistics, the larger part of my paper, showing that capital punishment not only is not deterrent, but actually provocative of crime—showing that states without the death penalty show a decrease in homicide and an increase in law obedience—he sweeps all this aside with a light gesture and says, "Figures are useless as a basis for conclusions." What drivel! To tell the thousands of physician-surgeons who begged the American people to quiet their Friedmann turtle-serum hysteria until "figures" could be had—the great army of scientific men who combated the sensationalism of the twilight-sleep craze with a demand for "figures"—to tell these men that figures are useless, when they are the ones to *demand* figures—who stand or fall by the law of averages.

If there is one thing on which conclusions may be based, and one thing only, it is that same law of averages. And, so, when the carefully compiled averages for ten years of Iowa and Wisconsin are compared, we see that Iowa, with its large native population, with its low rate of illiteracy, and its high per capita wealth, yet, has *two murders for every one of its neighboring state Wisconsin*, that has not the death penalty, handicapped though it is with a 65-percent foreign-born population; when we compare Ohio, with its electric chair and a murder rate *thrice* that of Michigan, without the death penalty, but with a lawless element in its lumber-camps and its immense mining-districts; when, I say, we compare these averages, what have we but *evidences* that justify us in saying that figures alone permit of the conclusions? And, judging by these conclusions, we see that the death penalty is a menace to society, rather than a protection.

Degeneracy as a Factor of Crime

Mr. Lacelaw foolishly forgets that his audience is composed of scientific people, when he says that only those suffer the penalty against whom there has been proven premeditation and deliberation, beyond a shadow of doubt. I say he is foolish, for, the medical man knows that some 35 percent or more prisoners are physical defectives, some 30 percent or more are mental defectives; and, if this ratio holds or increases, it also holds for those who have died upon the scaffold. If, then, considerably more than half of all law violators are defectives, what shall we call the legalized execution of those defectives whom society slew and who otherwise might have been better treated? Should it be called "murdered through ignorance"?

We now know that all the physicians who examined Guiteau privately believed him insane, but that they dared not then, in the face of public passion and prejudice and unenlightened medicolegal procedure, save this man from the hanging given an insane man. Had the crazy crank Schrank, who fired at Roosevelt, discharged his shot a score of years ago, it is possible that he, too, might have ended on the bight of a rope.

I mention these cases merely as pointing the fact that half of the men legally executed should have been otherwise handled. Yet, Mr. Lacelaw says that only cool, designing villains are given the death penalty. Mr. Lacelaw would have been more nearly correct had he said that the rope is the poor man's punishment; for, it is my experience that 95 percent of those hung are without means to fight their cases through all the courts, with all the loopholes available to a Harry Thaw, to mention one.

Whosoever Sheds Blood

His statement is, that the abolition of capital punishment would bring into vogue summary vengeance or, as he puts it, "the eye for an eye, tooth for a tooth idea." If capital punishment be not that very thing, pray, what in the world is it? And the strongest argument offered in its support is that very "eye for an eye" quotation.

But, when those states which have abolished the death penalty show a *lower* homicide-rate, a smaller number of murders, is it not *proof* that the higher humanity is productive of a higher moral standard in the commonwealth?

The Iowa-Wisconsin figures, the Ohio-Michigan comparisons, all prove this.

From report 108, Fifty-fourth Congress, one may take these extracts: "In Belgium, the rate of homicide has decreased from 9.17 per million people before to 8.004 since the banishment of the death penalty. . . . . There has been no increase in crime since the abolition of the death penalty in Holland. . . . . Portugal shows that the number of homicides has decreased during the succeeding years."

In the reign of the "good" king Henry VIII, a mere handful of 72,000 people were executed in Britain, and in 1819 Great Britain still showed 180 causes for which men might be legally executed; yet, if we take Mr. Lacelaw's statement, he would have us believe that a reign of crime is sure to follow the natural progress in our human understanding that abolished all save three causes for capital punishment. He would have us believe that the world went backward when it stopped burning witches on Salem Hill. Possibly he would have us go back to the Draconian Code, when every offense was punishable by death. This is an old wornout cry, that has been heard with every humanitarian advance, "It will encourage crime"—a cry of the theorist stilled in the facing of facts.

Some Famous Murder-Cases

While I submitted any quantity of statistical data showing that legal executions *do* increase murder, I am glad that my critic brushes these aside and presents sentimental reasons. I am glad that he advances the Rosenthal-Becker murder as an instance, for one has but to remind him that the assassination of Rosenthal followed very close upon the heels of the execution of four men, within an hour, in his state of New York.

I have but to remind him that there were more homicides in the week following the execution of the "four gunmen" than in any two weeks in the previous history of New York.

I am glad, too, that he called up the case of Chester Gillette dumping the body of his sweetheart into a lake, for, I will remind him that in direct sequence there came the Beattie case in Virginia, the Richeson case in Massachusetts, this last one, in turn, furnishing the inspiration for the murder, by Father Schmidt, of his own woman.

I am glad, moreover, that Mr. Lacelaw likes my *simile* of the physician-parent and his child with that of the state and its ward—I am glad, for there is not one single physician in this intensely *humane* profession who would, himself, execute his little son, if in a fit of boyish rage, the lad had killed a playmate. And, if medical men, who study the causes so that they may arrive at cures, understand the weaknesses, the lack of control, the dominating influences of childish defectiveness, are, yet, willing to try for a cure, why, in God's name, cannot the state do that thing with its erring ward?

Let me, for the moment, take the last cases mentioned—Richeson and Father Schmidt. Here we have the polished preacher of Boston wishing to rid himself of his mistress. His crime is followed by punishment, but over in New York the crazy priest Schmidt is in the same predicament—he wishes to be rid of Anna Aumiller, and the solution of his problem comes when Richeson is executed. The inspiration is furnished him—he counts on being more successful than Richeson; but, if caught, why, it will soon be over with—for, doesn't he say, "The chair will soon end all"?

Let me take, now, another famous Boston case and compare it with these two. More than forty years ago, New England is shaken by a series of degenerative murders of young boys. One Jesse H. Pomeroy, himself a lad of fourteen, is convicted of these offenses, on evidence that today would be, perhaps, incomplete, with perhaps the medical world demanding medical care for the offender. Forty years is a long, long time, but Jesse Pomeroy is not forgotten. Guilty or not, it is not for me to say. What I do want to say is, that Richeson is forgotten and buried in his quicklime grave, while Jesse Pomeroy this day is tramping his cell in Charlestown. And, there lives no mother who can paint the dead, forgotten Richeson, the polished priestly murderer, in tones that will cause her growing sons to lift their soft hands toward heaven in an oath that they will not be Richesons—but that same mother can send those same boys into convulsions of repugnance, into soul-stirred avowals that they will not be Pomeroys.

Richeson's crime has been repeated again and again—those charged against Pomeroy never, at least not in that locality. And *there*—in this paragraph, if you please—is my absolute proof that the death penalty is not, nor can it ever be, anything of a deterrent of crime. I can quote Pestalozzi, who certifies to four women admitting to him that they killed their babes, after seeing another girl executed for infanticide. I can

quote you an instance, where on the occasion of a public hanging at Lebanon, Tennessee, two young men made up a viewing-stand and sold space for witnessing the grewsome spectacle and—listen to this—within less than eighteen months bôth these men were hung for exactly the same crime as that committed by the victim they had exploited!

The Justification

I should not have replied to Mr. Lacelaw, save out of my keen desire to have medical men think more of this great question, for his argument defeats itself. Its quality is well shown in that futile reply to the fact that a symposium of prison-wardens showed more than three-fourths opposed to the death penalty. Note what a petty cause Mr. Lacelaw offers for ignoring this verdict: that they do not like to perform an unpleasant duty. He forgets that these men knew of the unpleasant duty when they took office—that many of them had been executing-officers for years—that all of them could assign deputies to the task—that with every legal killing most of them protested that the death penalty was inefficient, nondeterrent, and a dangerous lowering of public standards—that all of them had been in office some time and as such they were the ones properly supposed to be the *real authorities* on such questions. He brushes all this aside as trivial.

I am perfectly willing that his entire argument be judged by his support of liquor, after conceding that his own ruin was brought about through that medium, when he asks that only adulterated liquors be prohibited. I am perfectly willing that his paper be judged by its claiming so much for "class," a plea for caste, or getting that out of the poorest of classes came that giant of Americanism and humanity, Abraham Lincoln, and many another leader of our lives.

On my desk is a little reproduction of Landseer's "Dignity and Impudence"—you know that painting, doctor—a picture of a barking terrier and a quiet mastiff, secure in his strength. I am tempted to mention this, because of Mr. Lacelaw's hope that, after I've had fifteen years of varied prison experience and constant study of this question, I might come to "see a new light on this capital-punishment question," perhaps under the tutelage of a man who discovers after only three months of a new warden that "there is plenty of good in every man if it can be brought to the surface." Mr. Murtha needs a better press-agent.

The Emergency Treatment of Poisoning

Practical Suggestions for the General Practitioner

By Samuel C. Beach, M. D., Evanston, Illinois

[*Continued from page 431, May issue.*]

Veratrum

This drug exerts its principal effect on the heart, the pulse becoming small and rapid and nearly disappearing when any exertion is made. There is severe nausea and vomiting and the patient is very weak. There is also dimness of vision, increased flow of saliva, and cold wet skin. Death results from cardiac paralysis.

Treatment. — Strychnine hypodermically, with heat to the body, and brandy or ammonia per rectum, are all measures to be recommended. Keep the stomach empty after washing out, but give small pieces of ice to swallow, in the hope of allaying vomiting, which is vastly depressing. Morphine may be successful in doing this, and it may be used.

Mercuric Chloride

The symptoms of bichloride of mercury poisoning begin within a half hour, with an acrid, metallic taste in the mouth, constricted feeling in the throat, retching, and a burning sensation in the gullet and stomach. A white coating forms at once on the shriveled lining of the mouth; the inflammation of the throat may involve the larynx, and the occurrence of acute edema may cause asphyxia. The pain in the stomach is severe, and usually is accompanied by nausea and the vomiting up of material streaked with blood. Later on there is purging, with bloody stools. Hemorrhage often occurs, this coming from

the stomach or the bowels. The urine is scanty or suppressed, the respiration difficult, the pulse thready and irregular. There is a tendency toward stupidity or even coma, which latter may finally supervene just before death. The early symptoms are always attended by prostration, great thirst, and restlessness. Death has resulted from 3 to 5 grains; yet, as much as 100 grains has been taken and, by virtue of prompt treatment, recovery has taken place. When the patient survives two or three days, constant surveillance of the kidneys must be maintained; for, the remote after-effects seem to be manifested most markedly on the kidneys, and the bowels and skin must be kept stimulated, so as to allow the nephritis to subside.

Treatment.—Give the most convenient albumin freely, such as flour paste, milk, eggs, fresh blood from a chicken, and the like. Remembering that excess of albumin redissolves the albuminate of mercury formed, the stomach should be frequently emptied either by emetics or washing. The gastro-enteritis will call for demulcents, such as linseed-tea, bran-water, starch-solution, and the like. Inasmuch as the above antidotes are all readily obtained, this treatment may also be styled the emergency treatment.

Corrosive Mineral Acids

Sulphuric, nitric, and hydrochloric acid constitute this group. The common symptoms produced by them, when swallowed, are: severe burning pain in the mouth, gullet and stomach, vomiting of acid material containing shreds of mucous membrane streaked with blood, dysphagia and dyspnea, constipation, suppression of urine, tender abdomen, great thirst, restlessness, prostration. Later, danger arises from stricture of the esophagus; still later (chronic), from lessened alkalinity of the blood, which latter produces softening of the bones and general impairment of nutrition. Inasmuch as there are individual differences in the action of these acids, a brief summary of each will here be given, followed by a general treatment for all.

Sulphuric acid is the most powerfully corrosive of the three and produces immediate destruction of tissue, giving a whitish color, but which quickly turns to brown. On black clothing, the acid spot is red, and black on white cloth, destroying the fabric, which has a characteristic "oily" or "pasty" feel. Death may occur at once when the acid is taken on an empty stomach, or the intense irritation of the glottis may cause spasm and death from suffocation before any acid enters the gullet or stomach.

Nitric acid is volatile, and inhalation of the fumes often produces serious injury or death. The stains produced are white at first, but quickly change to orange or reddish-brown. The vomited matter gives off orange-colored fumes, which are characteristic. The symptoms after inhalation may be delayed several hours and improvement even take place, when suddenly, even after one or two weeks, there is an alarming increase in severity of the symptoms, ending in pneumonia and death.

Hydrochloric acid is the least corrosive, failing to cause perforation except when left in contact with the tissues for some time. Being volatile, however, the fumes readily pervade the lungs, setting up intense irritation. The white vapor of the acid arising from the vomited matter is characteristic. The stain produced is light-yellow and not so rapidly destructive to tissues or fabric.

Treatment.—Do not use the stomach-tube, as there is great danger of perforating the already softened tissues. Give plenty of water containing, preferably, calcined magnesia; but chalk, whiting, wall plaster, lime-water, soda, borax or soapsuds may be used in emergency.

A word of caution here as to the use of carbonates, which give off carbon-dioxide gas in large amounts when met by an acid. The ebullition of this gas in large amounts may distend the stomach to such an extent as to cause rupture, therefore the alkaline hydroxides are to be given in preference. Never give the alkalis dry, but always in solution, as they act much more quickly. When vomiting occurs, the acid is usually in the first portions of vomited matter. When it is reasonably certain that all acid has been removed or neutralized, demulcents may be given, and also opium to quiet pain.

Treat burns on the skin by first washing and then coating with moist alkali.

Have the tracheotomy instruments always handy, as operative measures may either be necessary at once or later, due to edema of the larynx or cicatricial contraction of the esophagus.

Corrosive Alkalis

The hydroxides or the hydrates of sodium, potassium, and ammonium are considered together under this head, all of them showing a common solvent action on albumin, a saponifying action when mixed with fatty

matter, and an intense avidity for the water of the tissues.

The majority of cases are accidental in origin and due to lye and washing-soda, which are both impure mixtures of sodium and potassium hydroxide and carbonate.

The symptoms are those of the corrosive acids, to which may be added general shock, varying with the location of the part attacked. There is burning pain in the mouth, gullet, and stomach, vomiting of bloody and shreddy matter, colicky pains and abdominal tenderness. Surviving the initial symptoms through prompt treatment, the patient may die later from the effects of the esophageal stricture produced.

Treatment.—This consists in the administration of any of the most readily available weak acids, such as vinegar, diluted lemon-juice, cream of tartar, and the like. Milk, olive-oil, and melted butter or lard will neutralize the alkali, but not so promptly. Do not use the stomach-tube, for fear of causing perforation. The other symptoms are to be treated as they arise. Have instruments for emergency-tracheotomy at hand.

An individual difference may be noted for ammonium hydrate (ammonia), which, being volatile, acts readily on the lungs and produces violent inflammatory reaction. It is present in many households as "hartshorn" and "ammonia," being used to remove paint and stains.

Chloral Hydrate

This drug, when taken in poisonous doses' produces deep sleep like that of anesthesia' from which it is impossible to arouse the patient. The breathing is shallow and irregular, the pulse can hardly be perceived, and the face is cyanosed. The extremities are cold and there is severe general depression, death usually being due to respiratory failure.

Treatment of Acute Poisoning.—Chloral is so soluble and so rapidly absorbed that local measures do but little good, unless the victim is seen at once. Therefore, physiological antidotes should be given, and strychnine hypodermically will be found as good as any. Hot coffee may be given by mouth and per rectum. Inhalation of oxygen-gas has proved of great value and should always be used when possible, artificial respiration being performed in all cases until the oxygen can be procured.

Chloral is sometimes used habitually and then may produce conditions difficult to diagnose. Among these are disturbances of digestion, loss of weight, diarrhea, insomnia, and local ocular irritation. In treating this habit, withdraw the drug gradually, and push the nourishment, giving strychnine and digitalis in the meantime. It is best to place the patient in a special hospital, except when the services of two skilled and faithful nurses can be obtained.

Carbolic Acid

This is a favorite poison, because of the knowledge which people feel they have of it. It has a local as well as general effect, and, when swallowed, produces burning pain in the mouth, throat, and stomach. It produces a white burn. It is rapidly absorbed, causing great muscular weakness and facial pallor; the skin is cold and moist, and, from the action of the drug on the nervous system, the patient soon lapses into unconsciousness. The pulse is rapid and weak, the breathing irregular, and the skin becomes blue. Death occurs from respiratory failure.

Treatment.—Diluted alcohol, from its solvent action on carbolic acid, has been used of late with the best results, care being taken to empty the stomach immediately afterward. Alcohol, by its solvent property, stops local action and absorption, and is, therefore, recommended for these cases. Stimulation with strychnine and artificial respiration may also be employed.

This concludes the somewhat dry, but, nevertheless, important subject of poisoning. It is the earnest wish of the writer of this article that every physician, possibly taking the above as a basis, may immediately and completely review his or her knowledge on the subject, obtaining thereby a crystallized method for future use—and who knows when that use may be of the utmost importance in the saving of that most precious of all earthly possessions—human life?

An Old Doctor's Life Story

An Autobiography

By Robert Gray, M. D., Pichucalco, Mexico

[*Continued from page 341, April issue.*]

Improved Galenic Medication

FRENCH chemical and pharmaceutical instruction acquired in Paris served me many helpful turns in my progressive struggles with the medication in the deadly tropical diseases. During my early years down here, I had the best French drugs, direct from the most remarkable manufacturing chemists of Paris; and I compounded and dispensed them myself.

In my fields of fearful deadly fevers and other pestilences that spread slowly from one big plantation to another, and one disease frequently following in the wake of another, the death rate was appalling, many patients being beyond the realm of hope when first seen, and that not occasionally, but in some parts all the year around. My medication and dosage were up to the recognized limits, yet, I had the humiliating pain to see poor sufferers die, whom, my presumptive intelligence admonished me, I should have saved. My faith and my patience in my academic attainments oozed from my fingers' ends. Then the supreme solicitude of my life became a sleepless purpose to save such patients and to modify the disease-conditions with which I was powerless to cope in those earlier days. Consequently, I resolved to abandon my anchorage to my costly and laborious education and to sink into deeper, darker ignorance or else to secure some measure of betterment in my management of these devastating maladies.

My conscience did not revolt at the resolve to resort to experimental practice upon patients positively predoomed to die under any system of treatment of which I was master.

Satisfied that my medication was shamefully inadequate, frequently not provoking even the slightest symptom of physiological action, I increased my dosage in a degree that under other circumstances would have inculpated me for criminal practice, and broke it up in fractions, giving these fractional doses with sufficient frequency for the whole of the increased dosage to be ingested in the authorized time of the legal rule as to dosage.

The results attained in this way were so surprising from the very inception that I was emboldened fearlessly to venture further and further along the same lines of renegade—or improved, if you will—practice.

But I had not been long in that new forbidden practice when my legitimatized treasure of improved galenic remedies arrived from Paris, and at that point my medical career had its inception, as already stated by me.

It seems pathethically mournful that I know of but one member of all the fraternity whom I met during the civil war who still is (or was, not many months ago) among the living—he is Dr. William H. Burgess, of Avondale, Chattanooga, Tennessee; the same Doctor Burgess who has gained well-merited fame all over the world through his development of epsom-salt therapy, of which I shall have something nice to say later on. There was Dr. Frank Lawrence, who left The Medical Brief as a worthy legacy to the profession, and was one of the final three to leave me in the earthly pilgrimage. I do not recall at the moment whether he or my ever lamented friend Dr. Ben H. Brodnax fell by the wayside last, though my memory hints that Doctor Lawrence continued furthest on the journey.

I refer to Doctor Brodnax just now, because I desire to place next to the active-principle development of Burrgraeve, a discovery he made as a superlative element in improved galenic medication, the most important substance and compounds employed by me in my practice. Although the substance had already been long in use, it is true, the new applications of it in medicine were the discovery of Doctor Brodnax. I refer to carbolic acid—now called phenol.

Brodnax's Discovery—The New Phenol Theraphy

Up to the time of this discovery of that friend of the rural South, and for some time subsequent, I had no idea nor bare dream of anything medical beyond my own distressful field down here in the jungles of tropical Mexico. I was neither planning nor thinking of communicating to the fraternity beyond the borders, and much less to the native profession, any feature of my work and experience among my patients. My

medications and my heart were amply absorbed with things present, that were urgent and pressing altogether beyond my power and capacity to meet the demands upon my attention. In other words, I had no time to write.

In those days, the American fraternity almost absolutely ignored, even burlesqued, the new active-principle therapy and practice. I had nothing to tell them that might not be met with a sneer. I had been but little in contact with the native profession here since my early yellow-fever and smallpox fiascos. There were no medical publications in existence, while I myself was then hardly known, at any distance from my accustomed tramping-ground; so that really there was little in common between the universal medical fraternity and my isolated work. On the other hand, the elegant profession of France and Belgium was well initiated in the active-principle practice; hence, there was nothing for me to say to those brethren.

The first I heard of Doctor Brodnax's discovery was through articles, appearing in my French medical journals, carrying the assertion that liquefied crystalline carbolic acid could be poured into cavities of the human anatomy without doing harm, the critics vehemently affirming that such a procedure would prove as deadly as electrocution; this novel treatment, which he credited to Doctor Brodnax, having been recommended by a prominent clinician of Philadelphia at a meeting of some American medical society. Knowing, as I did, the sterling character of Doctor Brodnax, I believed it impossible for him to have attempted to palm off a huge and perilous hoax on the medical profession of the world.

Not Bland Oil, But Strong Carbolic Acid Into Wounds

Within a few days after reading this item, one of the customary machete duels between drunken men took place, five of the men remaining on the field of honor well hashed up, three of whom were in great danger of death when they came under my view. I promptly placed a bottle of crystal carbolic acid in a vessel of water, and placed this over a fire until it liquefied. I then poured this warm liquid directly from the bottle into the deeper and most dangerous of the flesh gashes and swabbed the smaller cuts with a big feather, washing off any chance overflows with alcohol. I noted that the flow of blood was checked immediately.

Three of the men had a raging fever and were moaning pitifully at the time this treatment began. Little time was required to go over them all. When I had finished the last one of the two least seriously hurt, I was astounded to find the most serious one, whom I had treated first, perfectly quiet and uttering no complaint. "By George! that fellow is dead," I soliloquized, in English, and hurriedly felt his pulse—and with more reluctant trepidation than I had ever felt before in that performance. But, lo, I found a regular pulse, no more feeble than the natural sequence to the loss of so much blood, and his fever gone. The same result quickly obtained with the others, the three more seriously hurt dropping into a quiet sleep.

As I quickly stitched the deep, gaping gashes, I saw that the blood and minute particles of injured flesh had been consumed and that the action of the acid on the blood-serum had formed an impervious albuminate over the healthy surface of the walls of the lesions. And there was evident not the shade of a symptom of absorption, which certainly would have fatally supervened from using the same quantities of the usual 5-percent aqueous solution poured into the cuts, as the pure phenol had been applied. The lesions all healed in a remarkably short time, without one drop of suppuration having formed.

At that time, I was using in my work a mixture of camphor and chloral hydrate for many classes of cutaneous troubles and old sores. I at once added an equal part of the crystal phenol, the camphor and chloral having been triturated to a homogeneous liquid. I at once discovered this compound to be much less severe, the burning sensation passing off in a few minutes, while the result was almost magical.

Then I went out of my way seeking new applications for it: toe itch, seven-year itch, ringworm, ulcers, and every old thing superficially barnacled on this much-afflicted human anatomy. I successfully aborted boils and ulcers in the act of formation, and cured hemorrhoids by injecting the pure liquid phenol hypodermically, heating the syringe in water, to avoid the crystallization in the needle.

I wrote out a statement of my various experiments, stating that they had their inception in the French criticisms, and sent it to Doctor Brodnax (whose address was given in the French journals). Doctor Brodnax sent my paper to The Medical Brief, in which it was published, and then Doctor Brodnax ordered thousands of reprints mailed to mem-

bers of the profession who were not Brief subscribers.

The result, at this end, was that I was soon snowed under by letters from doctors, hundreds desiring to locate in practice down here, others asking a thousand and one questions about as many things; also, the editors of several medical journals requested items from this new field to them, while Doctor Lawrence himself also claimed some measure of my attention.

That Magic Phenol-Camphor Compound

In the course of time, I began to mix the compound with olive oil, 4 parts of the pure oil to 1 part of the compound; thus securing a useful preparation for catarrh, gonnorhea, sore or inflamed eyes; but I reduced the strength for women and children in proportion to conditions and age.

Now, for whatever disinfecting purpose, whenever a solution is employed in the human anatomy, I dissolve the phenol in oil, in more than double the permissible strength in watery solution, and I have a permanent application that does not lose its strength nor dry up.

It would make a big bookful to mention all the precious service I have had from phenol and its combinations. I have put the compound, properly reduced, into deep suppurating gunshot-wounds, through a soft rubber sound, and promptly had results that other known applications failed to attain, even in capable hands. I have applied the pure liquid phenol to bleeding wounds of federal soldiers and of rebels during the different revolutions that have scourged the country in recent times, and have had results equal to those in the machete gashes mentioned above—many deep wounds that healed quickly without any stain of suppuration. There were serious wounds not possible to attend to after the primary bloody dressing, because the intervention of the other hostile party prevented seeing them again; these men remaining without other attention for long periods, the poor fellows shifting from post to pillar, as it were, to escape the firing-squad; yet these wounds finally healed under their bloody bandages, with my compound in. I do not believe any other hightoned ethical substance known and used by the aristocratic profession can nearly approximate such showing.

[*To be continued.*]

Vaccine- and Serum-Therapy in Everyday Practice

V. Infections of the Skin and Subcutaneous Tissues

By W. C. Wolverton, M. D., Linton, North Dakota

EARLY in this series of papers on bacterin- and serum-therapy, we endeavored to state plainly that this line of treatment is not meant for a cureall and that it is not our intention to exploit biological therapy, to the exclusion of time-tried medicinal remedies; but, rather, that bacterial therapy attains its most brilliant results when practiced in conjunction with the indicated active principles of drug-remedies. Therefore, as we take up each individual infectious process, we shall give not only the biological treatment, but also the collateral remedial measures, in the way of drugs and chemicals.

In order to simplify the subject as much as possible, we have not heretofore considered the specific bacteriology of individual infectious processes, believing that it were better to consider the bacteriology and treatment of each condition together, as we shall take them up one by one.

In general, we may say that the great majority of infections affecting the skin and underlying tissues are due to invasion by the "pyogenic (pus-forming) group," consisting essentially of the streptococcus pyogenes, and the staphylococcus aureus, albus, and citreus. Other organisms concerned in infections of the tissues just referred to are the pneumococcus, bacillus pyocyaneus, bacillus of tuberculosis, colon-bacillus, acne-bacillus, and, occasionally, the rarer bacteria, such as the bacillus mallei (of glanders), typhoid-bacillus, streptothrix actinomycosis, and so on.

Of the foregoing pathogenic bacteria, the streptococci and staphylococci are usually the primary invaders; later, once these malefactors have paved the way, other germs may effect a secondary invasion of the tissues; in fact, the secondary invaders may in time greatly outnumber the primary. Treat-

ment directed at the variety or varieties of bacteria concerned in the secondary infection will usually effect a considerable improvement in the conditions present; but it is evident that such treatment will not reach the underlying, or primary, infection. In such cases, a combined bacterin, containing all or at least a majority of the varieties of microorganisms responsible for the pathologic condition, is indicated.

Probably the simplest order to follow in taking up the various conditions about to be considered is the alphabetical one, and this we shall adopt.

Abscesses

Acute abscesses are almost always caused by the pyogenic cocci, but may be due to other organisms. Usually, in a given abscess, a pure culture of one specific bacterium will be found present. In *chronic* abscesses, however, two or more distinct varieties of bacteria are quite likely to be found existing conjointly. Chronic abscesses are commonly due to the bacillus of tuberculosis. Occasionally the streptothrix actinomycosis may be met with.

Ofttimes an abscess is only the local manifestation of an underlying systemic infection. For example, multiple pyemic abscesses may result from puerperal sepsis, typhoid fever, osteomyelitis, appendicitis, pneumonia, and so on. In such cases, due regard must be paid to the underlying trouble.

Naturally, wherever an abscess is so situated that it can be safely reached, evacuation of the purulent contents and subsequent drainage must be secured.

In *chronic* abscesses, where there is a thick wall of coagulated lymph and fibrin, constituting a "pyogenic membrane," which is impervious to the antibody-bearing blood-serum and lymph, the walls of the abscess should be carefully curetted, to remove the necrotic material. The cavity is then to be lightly packed with gauze saturated with Wright's citrate solution (see article III). Citric acid, in doses of 1-2 to 1 dram three times a day, administered by mouth, is indicated, in such cases, to reduce the coagulability of the serum and lymph.

In some cases, the contents of a small abscess may be removed by means of aspiration, the transudation of antibody-laden serum being thereby facilitated and recovery hastened. I recently removed, by means of a small (2 Cc.) Luer syringe, the contents of a suppurating lymph-node in the neck of an infant; this treatment was supplemented by the injection, into the gluteal region, of a dose of a bacterin containing streptococci, straphylococci, and pneumococci. Complete recovery ensued, without the necessity of lancing the abscess; scarring was thus obviated; nor was the infection diffused throughout the surrounding loose cellular tissue of the neck, which might have happened had lancing been resorted to.

No thinking man now employs strong chemical antiseptic solutions in the treatment of infections, except in rare instances (anthrax tetanus, and so on), where it is desired to destroy infected tissues *en masse*. Strong chemical antiseptics cause coagulation of albumin of the serum and tissues and thus favor rather than hinder the growth of bacteria. Hypertonic salt-solution and Wright's citrate solution have a much more logical and favorable action, producing as they do, a copious outpouring of serum, bringing with it fresh antibodies, and washing away bacteria, toxins, dead leukocytes, and cellular detritus. In many cases, the mere existence of an abscess is indicative of a condition of lowered systemic resistance, which underlying condition may be due to intestinal autotoxemia, or to a focus of chronic infection elsewhere (pyorrhea, chronic tonsillar infection), with constant absorption of toxic products of bacterial activities. When such conditions exist, attention must, of course, be directed to their removal.

Bacterin Therapy of Abscesses

As a general rule, smaller doses of bacterin are required in acute than in chronic conditions, for reasons before stated; namely, that, in chronic cases of infection, a mutual tolerance has been established between the tissue-cells and leukocytes, on one side, and the invading bacteria on the other; hence, in chronic cases, a larger dose of bacterin is usually required to evoke an immunizing response.

Where the infection is due to a single variety of microorganism (as may often be demonstrated by the microscopic examination of a stained coverglass spread of the discharge), then a polyvalent stock bacterin containing only the corresponding variety of killed bacterium is indicated. But, when the bacterial diagnosis is not perfectly clear and self-evident, then a *combined* bacterin, containing all the various pathogenic germs liable to be involved in an infection of that particular region of the body, should be resorted to.

The average initial adult dose, in acute

cases, of the streptococcus is 25 to 30 millions; pneumococcus, the same; staphylococcus, about 100 millions. In chronic cases, the doses of the various germs should be about double those employed in acute infections.

In acute cases, the dose, increased by 50 to 100 percent, is to be repeated in from one to three days. Should any evidence of a harmful negative phase be evident, after the first or any succeeding inoculation, it would indicate that the dose was too large. Then one must wait until the negative phase has passed and the positive phase supervenes, when a somewhat smaller dose should be resorted to. In chronic cases, larger doses are employed, and at correspondingly longer intervals, of say, from four to ten days.

In chronic abscesses, due primarily to the tubercle bacillus but complicated by the pyogenic cocci, large doses of the streptostaphylococcic bacterin will be necessary to overcome the secondary infection; while some form of tubercle-bacterin or tuberculin will be required to cure the primary process. As I have before stated, I have had but a limited experience with tuberculins as therapeutic agents; hence, I can do no better than to quote Allen ("Vaccine Therapy and Opsonic Treatment," 4th Edit., p. 138), who considers the bacillen-emulsion the most suitable preparation, and gives the initial dose as 0.00001 Gram. The initial dose, he says, should not be increased so long as the immunizing response, as judged by the clinical condition, is a satisfactory one; when increase is necessary, this may be made gradually.

When a chronic abscess has at length been overcome and cured, it is well to administer occasional doses of bacterin, at say, monthly intervals, in large dosage (1 or 2 billion killed pyogenic cocci), to maintain the resistance of the tissues at as high a level as possible, and thus guard against recurrence of the infection. These periodic inoculations should be kept up until it appears that all danger of recurrence is past.

Medicinal Measures in the Treatment of Abscesses

In the treatment of acute abscesses, I would place calcium sulphide as the most powerful synergist, in conjunction with bacterins. This remedy I have employed for more than ten years, and my faith in its efficacy is unshaken. But, to get the best results from it, one must employ it in sufficient dosage. This means that it should be administered in doses of from 1-2 to 1 grain, repeated every hour or two hours, until the wellknown odor of hydrogen sulphide is distinctly noticeable on the breath of the patient; then the interval may be lengthened to, say three hours.

Strychnine, to "take up the slack," is indicated in many cases of abscess. Where the streptococcus is implicated, there is usually more or less hemolysis, with consequent anemia. Then some form of iron should be used. A very efficient combination is the well-known triple arsenates (iron, quinine, and strychnine) combination.

In *chronic* abscesses, the iodide of iron is indicated; as is also cod liver-oil, in an emulsion freshly prepared with egg (both the albumen and the yolk), and flavored with methyl salicylate.

Acne

My experience with acne, that notoriously intractable condition, has been that excellent results can be obtained from bacterin-treatment, associated with proper hygienic and medicinal measures; provided the physician can secure the honest cooperation of the patient. Any failure, I believe, will be owing to carelessness on the part of the patient and his failure to understand the utter necessity of patiently following systematic painstaking treatment until such time as a cure has been effected, and then guarding against relapses.

As to the etiology of the various infectious conditions grouped under the designation acne, we may state that the acne-bacillus is present in virtually every case, while the staphylococcus albus is to be found as a complicating causative factor in at least one-half of the cases. Rarely the staphylococcus aureus or the streptococcus may be concerned. Accordingly, stock bacterins intended for the treatment of acne contain, usually, a combination of acne-bacillus and staphylococcus albus, in proper proportion. Polyvalency of both varieties of bacteria is an essential here, as much, or more so, than in the treatment of other infections.

The initial dosage of the acne-bacterin is about 5 million acne-bacilli and 100 million staphylococci. The dose must be gradually increased, as determined by the clinical symptoms. The proper interval between doses is about a week.

Hygienic, Dietetic, and Medicinal Treatment

In the cases just considered, a blood-count often will show the existence of anemia, and the triple arsenates of iron, quinine, and strychnine will be of benefit.

A combination I have employed with

advantage in a good many cases of acne is one containing calcium sulphide, echinacea, nux vomica, berberine, arsenic sulphide, and irisoid. The indications for the various ingredients of this combination are self-evident.

Unless you are sure that the bowels are doing their full duty, a saline laxative should be taken, immediately upon arising, every morning, in sufficient dosage to produce a free evacuation. A dose of calomel, once or twice a week, is also of value. Vegetable purgative drugs are mentioned only to be condemned. In obstinate cases, enemata must be resorted to, until the condition is gotten well in hand, when calomel and salines may be trusted to keep up the good work.

The free drinking of *pure* water is to be encouraged, since that aids elimination of toxic materials through all avenues of excretion.

A light, nutritious, easily digestible diet is imperative. These patients must avoid food cooked in the frying-pan. A vegetarian diet, supplemented with milk, is best.

Where intestinal putrefaction persists, despite the efforts directed at elimination, the administration of a living culture of the bacillus bulgaricus, obtained from a reliable laboratory, is indicated.

All comedones must be expressed and pustules lanced, in order to determine the flow of antibodies to the infected foci. For a like reason, steaming the face with a bath-towel wrung from hot water, continued for fifteen minutes or so, every evening, is a measure of great value. This should be accompanied by gentle massage of the affected tissues.

The free use of warm soft water and pure, unirritating soap, for frequent bathing, must be insisted upon.

If there is a coexistent seborrhea of the scalp, a weekly shampoo should be taken, using a *pure* tar soap. This is essential, in order to obviate the possibility of reinfection from this source.

Above all, these acne patients must be encouraged to be faithful and persistent in their efforts at cooperation with the physician. Bacterin-treatment will go a long way toward effecting a cure, but will not do it alone.

The Principles of Therapeutic Immunization

By J. Favil Biehn, M. D., Chicago, Illinois

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THE object of this paper is, to reiterate some of the essential details absolutely necessary to success in the use of bacterins. I have, in a measure, attempted to bring out the essential procedures usually neglected by the general practitioner and those that generally result in failure, because my experience has been that most of the patients referred to me by the general practitioner have rapidly improved as a result of careful attention to the necessary details.

The exact value and the limitation of bacterins are far from being clearly defined, notwithstanding the excellent results obtained by experts and the frequent marvelous cures reported by general practitioners.

Even those of us who specialize in therapeutic immunization occasionally fail to obtain the desired and expected result; but such failures are due, I believe, to improper application of the method of immunization. The method itself undoubtedly is efficient.

I firmly believe that localized bacterial infectious diseases can be cured, in practically every instance, by means of therapeutic immunization, provided the patient is not suffering from some generalized metabolic derangement sufficiently severe that it cannot at least be held in abeyance by surgical or general medicinal treatment, at any rate to such an extent as to allow the patient's tissue-cells to react to the stimulus of bacterins.

Essential Factors in Bacterin-Therapy

Aside from the necessary proper medical and surgical attention, which many times constitutes half the battle, therapeutic immunization, to be successful, depends upon two factors, namely: employment of a proper vaccine, either autogenous or stock, correctly prepared and properly administered; and the insuring of a sufficient flow of lymph through the infected tissues.

Often the proper bacterin is not being employed. The average general practitioner uses one of the combined bacterins and, unfortunately, but rarely has a bacteriologic diagnosis made. In all probability, more physicians than ordinarily believed, use the Van Cott combined, the gonococcus combined, pneumococcus combined, and staphylo-

acne bacterins, to the absolute exclusion of the single bacterin. If we are to judge by the results they obtain in the majority of cases, this procedure, while not ultrascientific, is eminently practical, and, so far as I am able to ascertain, entirely harmless.

Except in the very commonest of infections, the diagnosis of the exact nature of the infection is beyond the average practitioner, calling for, as it does, expe rt bacteriologic knowledge, technic, and adequate facilities. But, as we are coming more and more to a realization of the possibility of transmutation of the organisms in the same group, and, owing to our limited knowledge and as yet crude methods of differentiation, the impossibility for even an expert, the exact diagnosis may be of questionable value. It is well known that concentrated sera will agglutinate various allied organisms, even though they have been produced by the immunization of other members or of a single member of a group.

A highly potent immune-serum that is specific for the gonococcus in a high dilution will, in a concentrated form, react also with the micrococcus catarrhalis and the meningococcus, organisms that we take to be distinct bacteriologically and certainly entirely distinct so far as the pathologic conditions they cause clinically are concerned, yet, belonging to a somewhat morphologically and tinctorally similar group. The interrelations of pneumococci and streptococci along similar lines are now well understood.

It is possible to conceive, therefore, that the immunization produced by one strain of streptococcus, while highly efficient against that particular strain, may also have an effect in the blood stream just sufficient to turn the balance in favor of recovery from an infection caused by an entirely different strain. However, it stands to reason, as a result of all our knowledge of immunity, that the use of an identical organism will give the best results.

Many failures are the result of the use of improper bacterins. We are inclined, usually, to consider all furuncles and ulcerations resulting therefrom as caused by staphylococci. Careful microscopic and cultural examination, however, have shown me that, when these staphylococcus bacterins fail, frequently a micrococcus catarrhalis, a colon-bacillus, streptococcus or a bacillus pyocyaneus is causing the infection; and, naturally, we should expect staphylococcus bacterins to fail.

In the preparation of an autogenous bacterin, occasionally the isolation of the causative organism is a difficult matter, especially in the case of influenza-, gonococcus-, and tubercle-bacillus infections. In the usual open infection, the diagnosis and isolation of the organism are comparatively simple. Occasionally we find, however, that most careful cultural methods are necessary, as frequently in chronic cases in which there is a profuse discharge the organisms are too few to be demonstrated microscopically; or the causative organism, as a streptococcus, may be entirely overshadowed by the enormous number of secondary invaders, such as colon-bacilli, and so on.

In closed infections, the proposition often apparently is impossible, there being no definite localized lesion available. However, in these cases, it is well to remember the possibility of focal infections, including the mouth cavity, the respiratory tract and its accessory sinuses, the auditory canal, and, in the male, especially the prostate gland. In every case, blood cultures should be made repeatedly.

A highly important fact, that is not as yet a matter of sufficient knowledge on the part of the general practitioner, is, the elimination of bacteria by the kidneys. A careful examination will usually reveal the causative organism in many cases in the urine. I have repeatedly massaged a chronic rheumatic joint and obtained the causative streptococcus from the urine, after repeated joint puncture had failed.

A single examination of the discharge from diseased tissues unfortunately is too commonly all that the average practitioner deems necessary. Many cases apparently improve as a result of bacterination for a time and then remain stationary despite increased dosage, and so on, and the physician is at a loss as to what to do. These are cases of additional infection, or some secondary infection has existed from the onset, but was not recognized and now is in the ascendency. Especially is this true of respiratory and urinary infections. Very frequently we have a new variety of infection manifesting itself during or immediately following bacterination for the original infection. A great many errors also result from the improper collection of material for examination and diagnosis.

The preparation of an autogenous bacterin does not concern the general practitioner. However, it is essential that it be properly prepared as to isolation of organisms, determination of their number, proper killing, and thorough testing in order to determine that they have been killed and that there are no

extraneous organisms present, especially tetanus-bacilli, or their spores.

The ordinary method of testing, by inoculating the surface of an agar-slant with some of the vaccine and incubating for twenty-four hours, is mentioned only to be absolutely condemned as being of no value and highly misleading. A suitable portion of the vaccine, from 5 to 20 minims, if a preservative has been added, should be inoculated into freshly prepared 1-percent glucose-veal bouillon in a 50-Cc. Smith fermentation-tube and incubated not less than seventy-two hours, preferably seven days.

How to Give Vaccines, and the Dosage

The administration of a vaccine, so far as the patient is concerned, usually does not receive sufficient consideration on the part of the physician. Personally, I inoculate through an area of the skin that has been painted some three minutes previously with tincture of iodine. I use a Luer all-glass syringe, with a very sharp platinum-iridium needle, 27-gauge, 1-2 inch in length. The skin is pinched up between the fingers, with firm pressure, then the needle is inserted with a rapid plunge; after which the bacterin is slowly injected. The only sensation the patient has, as a result of this procedure, is a slight burning lasting for probably thirty seconds. The insertion of the needle usually is not noticed.

The dose of the vaccine necessarily varies greatly. The first dose rarely ever is too small; rather, frequently too large.

In general, the dose should vary inversely as the severity of the invasion and the extent of the lesion, and it must also necessarily depend upon the general power of resistance of the patient. We aim to obtain a maximum immunizing response with a minimum of toxic effect. Even severe local reactions are to be avoided.

The clinical condition of the patient is the most practical and ample guide. The determination of the opsonic index may well be dispensed with; it is impractical, time-consuming, expensive, and misleading. The patient's general condition, pulse, temparature, and other clinical symptoms, especially the aspect of the localized lesion, as regards pain, discharge, and so on, are the surest guide.

Always begin with a small dose. Repeat this as soon as improvement begins to wane, although repeated small doses are not the most efficient. Never increase the dose until definite evidence that the previous dose did not produce an improvement demonstrates that it was too small.

If the clinical symptons, that is, the focal reaction, produced by a dose, last several days, that dose was too large, and the next one should be the same or even smaller. If improvement does not follow or is of short duration, the dose is too small. Only in acute infections, and then usually for not more than three or four doses, is it advisable to give a very small dose every twenty-four hours.

The Bacterin Must be Supplemented by Other Measures

The average practitioner unfortunately considers that when he has injected the bacterin he has done his full duty. But this is far removed from the truth. Provided the proper bacterin is selected and the patient's cells react by producing antibodies, the essential has not yet occurred. It is absolutely necessary that serum or lymph, highly charged with antibodies, have access and flow freely through the lesion. This is much neglected, and, yet, is nature's method of eventually destroying the infection.

Every inflamed area, whether it show the typical clinical signs of acute inflammation or not, is congested, tumefaction is present, and the circulation, because of the pressure, is practically nil. Therefore, in every case, if possible, local applications of a solution containing 1-2 percent of sodium citrate and 4 percent of sodium chloride is the ideal treatment. If the blood coagulates rapidly—as it does in many infectious diseases—the injection of 60 grains of citric acid every three hours, for four doses, is absolutely necessary; and this alone will often yield wonderful results. In addition, owing to the unquestionably valuable clinical results that we have obtained with nuclein—which is capable of doubling or trebling the leukocyte-count—we now give this as a routine procedure, either hypodermically (although it is somewhat painful this way) or in large doses by month.

We have entirely quit the use of antiseptics. In order that they may penetrate and kill the bacteria, they must be strong enough also to kill the cells and the leukocytes, and then they would also destroy the immune-bodies in the serum. Therefore, we now rely entirely upon wet-packs of sodium-citrate and sodium chloride.

The dosage of bacterins, as usually recommended by most practitioners is considered too small. However, we advise that not to

exceed 100 million staphylococci, or 50 million pneumococci (in pneumonia, 25 million), or 100 million colon-bacilli, or 50 million streptococci (preferably one-half to three-fourths of this amount) be given as the first dose. You will then avoid a severe local, focal, and general reaction, which, if either should occur as a result of the first dose, is very liable to induce your patient to object to continuing the treatment. Acne-bacilli and diphtheroid organisms should never be given in doses greater than 10 million. These two organisms are particularly prone, in larger doses, to produce local reaction at the site of inoculation.

[*To be continued*]

What the General Practitioner Can Do in the Treatment of Chronic Diseases

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[*Continued from page 418, May issue.*]

Mechanotherapy

IN this chapter I shall discuss various forms of exercise, more particularly passive, as embraced under the general heading of mechanotherapy. I shall give the physiological action of the various methods employed, which will enable the physician to judge what form is best adapted to any particular ailment. When I come to take up the various diseases, I will then go into the matter of mechanotherapy, or exercise for remedial purposes, in detail.

Between the function of an individual organ or structure and the physiological capacity of the whole organism, there is a double connection, namely, that of the *sympathetic* control through the nervous system, and the *nutritional* influence through the circulation of the blood. These two forms of connection again are closely related to and dependent upon each other, for the reason that nutrition, through the blood circulation, is controlled by the socalled vasomotor nerves—which are parts of the sympathetic nervous system—and the action of all nerve-tissues is dependent upon its own nutrition through the quantity and quality of the blood current.

The practical significance of all this is, that, if we wish to raise the functional power of any part, we must increase its blood supply; to stimulate the circulation or nutrition of a part, we must raise its functional capacity; to increase the circulation in and the capacity of a structure, is to intensify its metabolism; when oxidation increases, the regeneration of tissues and fluids becomes more rapid. As a necessary result, the lymphatics and absorbents do more work, and thus elimination of waste becomes more active and copious.

There are in vogue seven or eight mechanotherapeutic methods that are subject to these physiological conditions and processes, and these I shall consider under their proper heads, starting with the simplest forms and concluding with those which demand a more or less elaborate equipment and a corresponding degree of experience and skill in employing them.

The Various Forms of Mechanotherapeutic Measures

A *manual* mechanotherapeutic method involves in its application the use of the hand; it is *instrumental* when machinery or instruments are brought into service.

Swedish movements are twofold in kind. Any ordinary exercise of the organism, such as walking, riding, swimming, and other athletic sports, is a hygienic measure merely, not therapeutic; it preserves health. When the exercise is systematized and pursued according to a regular plan, for a definite purpose, it becomes therapeutic, rather restoring health than merely preserving it.

From the standpoint of therapy, any special form of exercise is called *kinesitherapy* (movement-cure, Swedish movements). The term "Swedish movements" refers to the country or people in or among which kinesitherapy has been most in vogue.

A Swedish movement is any form of bodily exercise having a fixed duration, direction, and purpose. The duration is limited by the tolerance of the involved part, the endurance of the patient and the character of the effect desired; the direction is indicated by the anatomical parts which are to share in the

effects; the purpose is contained in the diagnosis of the particular case. This should be thoroughly clear in the mind of the operator before any movements are begun.

There are two general varieties of Swedish movements:

1. *Active movements*, or movements that are performed by the patient through his own will and effort, without either help or interference. For example, if he bends his arm, in order to contract his biceps muscle, according to instruction from the operator, that constitutes an active movement. This form may be made to involve one or any number of the voluntary muscles, for producing some definite effect.

2. *Passive movements* may involve any number of muscles without any effort on the part of the patient, as, when the operator bends the arm of the subject, the latter neither aiding nor resisting.

The character both of active and passive movements may be changed by the kind (and amount) of labor involved in performing them. When the operator bends the patient's arm, the patient remaining passive, the effect will be very slight; but, if the patient, instructed to resist, brings the muscles into play by holding his arm rigidly extended, it is evident that the effort of bending will be greatly increased.

This principle of resistance leads to a *classification* of the various active and passive movements, as follows:

1. *Concentric movements*, which are those involved when the subject, in using certain muscles, resists the endeavor of the operator to *prevent* those movements.

2. *Excentric* (eccentric) *movements*, which are those involved when the subject resists the endeavor of the operator to produce certain movements.

Flexion, *extension*, and *rotation* are the terms applied respectively, to bending, straightening, and turning of any part.

A variation of the concentric movements may be made by causing the patient, lying flat on his back, to attempt to raise his legs without flexing the knees, while the operator opposes the movement. This, of course, would increase the intensity of the effort, with a corresponding degree of benefit derived. Other modes would consist in the patient's standing erect and then gradually bending forward without bending his knees, or he may pull himself up slowly on a horizontal bar, or perform some such exercise. The abdominal muscles would be very active in all these movements, the intraabdominal circulation would be stimulated, venous congestion counteracted, and metabolism corrected and intensified.

The *physiological effect* produced may be stated as follows: In exercises of this kind, labor is necessary; labor incites a greater consumption of food-elements in the parts involved; metabolism becomes stronger and more rapid; there is increased production of body-heat in the active region, with a correspondingly greater amount of waste material. Exaggerated exercise, therefore, means exaggeration of all the physiological powers of organic function. In consequence, there will result increased and better nutrition; the structure will improve in quantity and quality; there will occur physiological hypertrophy, and, accordingly, greater functional power; the part will hold more blood; the blood will circulate more vigorously; venous congestion and the local autotoxic condition thereby induced will be counteracted, so that the part will become stronger, larger, more active, and more healthy.

The varieties of the Swedish movements adapted to the indications of clinical conditions are practically endless. They may involve the entire body or merely a finger or a toe. We may flex, rotate or extend, with or without resistance, the hand, arm, shoulder, foot, leg, hip, and so on, and resolve these movements into any number of subvarieties, according to any particular need. We may treat the chest, the head, the neck, the back. We may, by compressing with the flat hand one part of the chest-wall, induce fuller respiration in the other parts. The elaboration of the methods is limited only by the ingenuity and skill of the operator, in whom physiological knowledge, diagnostic judgment, and individualizing power are prerequisite qualifications for complete success. However, the full value of kinesitherapy does not become apparent, perhaps, until it is combined with other mechanotherapeutic means, especially massage.

Massage

The term massage is applied to the kneading of the soft tissues of the body according to a certain defined system. As massage may be performed by hand or by means of special apparatus, it naturally falls into two classes—manual and instrumental.

Without doubt, massage is the most venerable of all therapeutic measures, bound up, as it is, in the very instincts of the animal (human as well as brute) organism. A person who receives a sudden blow, bruise or almost

any kind of injury of his body instinctively rubs, squeezes, strokes or holds the part; while animals will lick their wounds or rub a hurt. This is massage in its rudimentary forms.

Although "handwork" is implied in the word "manipulation," this term is technically applied to all mechanical methods of treatment that affect the size or shape of any area of the body, whether by stroking, rubbing, squeezing, striking, and so on, and whether administered by hand or instrument. Manipulation, therefore, is the primary element of massage. To press the hand on a part of the body-surface, causes the latter to yield and undergo a change in size or shape, or both, the nature and duration of the change depending on the duration and force of the pressure. A mere quick slapping or striking produces alteration of the area as truly as does a long and forceful contact.

Vibration and Osteopathy

From the foregoing explanation, it becomes evident that "vibration," which at present is so popular a physiotherapeutic method, is merely a subvariety of massage, and by no means a system in itself. Under the double head of massage and Swedish movements there are included all the osteopathic manipulations; and the efforts to establish Osteopathy as a special system, as differing from massage and Swedish movements, and larger than both of the two combined, are futile.

There is nothing in Osteopathy that has not been borrowed from kinesitherapy and massage or can not be explained by spondylotherapy.

Vibratory stimulation, as advertised by certain enterprising manufacturers, has been given us by the substitution of an electric vibrator for the Osteopath's hand; and this mode, though having less claim than has Osteopathy to being a therapeutic specialty, forces vibration from its proper therapeutic position. It is neither more nor less than a form of the ages-old massage.

As to the *physiological effects*, I have already mentioned some of the physiological principles involved in the therapeutic uses of mechanical methods, and several of these are included in the subject of the physiological effects of massage, as:

Contact: As has been already pointed out, the contact of the operator's hand or finger with the patient's body, without pressure, gives the simplest form of stimulation; and this contact produces a threefold physiological action: (1) It influences the temperature of the two surfaces, which is its thermic effect; (2) it stimulates the cutaneous nerves and induces an agitation in the interneurotic dendrites, its electrical effect; and, (3) it starts that vague motion which is supposed to be a radiation of the subtle, undefined power, *animal magnetism*, and which I will call the magnetic action of contact.

Pressure: This is contact magnified or accentuated and contains all the physiological action of contact, to which are added certain definite physical effects. The soft parts, including the blood-vessels, are compressed, and a state of relative anemia is induced; the diminution of blood being proportionate to the degree, extent and duration of the pressure. With the removal of the pressure, the circulation becomes regenerated. The blood rushes back not only with greater vigor, but because it brings with it fresh arterial blood from the deeper vessels, with improved quality. All contractile tissue, including the muscular, is affected by pressure, which, in its general action, is equivalent to the passive movement before mentioned. The lymphatics become more active, primarily in response to the manipulation, secondarily in response to the regenerated blood supply; and the nerves are influenced in the same manner.

Pressure may be varied in kind. It may be exerted downward or obliquely; it may be of long or short duration—a smart slapping or a uniform and continuous movement, as in stroking or effleurage. In short, it would be difficult to name a limit to the number of directions and ways in which it may be applied.

[*To be continued*]

What Others are Doing

ATROPINE FOR SPASM OF THE PYLORUS

In two instances, excellent results were witnessed by K. Ochsenius (*Deut. Med. Woch.*, 1915, No. 51) in combating pyloric spasm; however, the dosage should be, in accord with Stoltes, considerably larger than ordinarily is prescribed. Thus, in his first case, the author gave 3 drops of a 0.01 : 10 solution (0.15 mg. of atropine sulphate), repeated six times. The other case was that of an infant of six weeks, and this got as many, even, as 8 such doses, or, 1.2 mg. in a day. The medication was well borne under the circumstances. It is advisable to give a dose of the remedy, not alone just before feeding, but also during and after the nursing.

THE STEISS PROCEDURE IN PLACENTA PRAEVIA

That the Steiss procedure in the management of placenta prævia is highly satisfactory, is the judgment of P. Baumm, of Breslau (*Zentralbl. f. Gyn.*, 1915, No. 50); his experience being that under it double the number of living children were born than when resort was had to the metreurynter. This is his method:

Just as soon as action is demanded and when the os has dilated sufficiently (so that, say, two fingers may be passed), external version is performed, the sac is ruptured, and then one foot of the child is drawn down into the vagina; after which, further developments are to be left as much as possible to nature, only checking any occasional oozing of blood by pulling at the foot and thus tightening the plug. Only when the os is too small or when external version cannot be accomplished (which is rare), should the metreurynter, or, inflated bag, be introduced.

DYSPNEA CAUSED BY ACID INTOXICATION IN CHILDREN

A peculiar form of dyspnea is described by John Lovett Morse in *The Boston Medical and Surgical Journal* for April 20 (p. 570), as a symptom of an acid intoxication of infancy and childhood.

This form of dyspnea is associated with the presence of considerable quantities of acetone bodies in the urine. There is no cyanosis, and it is peculiar in the fact that the rate of respiration is increased while both inspiration and expiration are prolonged, the normal relation between the two being preserved. In this acid intoxication, the quantity of urine is reduced, while complete aneuria is not uncommon. Vomiting is very common and diarrhea frequently occurs, although constipation is not infrequent. The breath may have a peculiar aromatic odor. The cheeks are flushed and the lips of a peculiar cherry-red color.

When these symptoms are present, the desirability of making an examination of the urine is evident. Alkaline treatment would, naturally, be indicated. The association of alkalis with intestinal antiseptics, as in a preparation such as sodoxylin, will give best results.

A CASE OF SOLANINED POISONING, WITH RED VISION

In August last, a vigorous girl of not quite 9 years ate about a dozen of the ripe scarlet berries of solanum dulcamara, commonly known as bittersweet, and soon became seriously sick. This being in the war-zone, the only aid available was Dr. S. Hilbert, staff-surgeon of a nearby regiment, who, obviously, was not provided either with a stomach-pump or the physiologic antidotes. His report (*Muench. Med. Woch.*, 1915, p. 1785) is of special interest, inasmuch as he mentions the fact that during the toxic stage the victim's vision was affected in such a way that (aside from the temporary iridoplegia) everything looked scarlet to her, "just like the berries"; although, as the author points out, this symptom of seeing red has repeatedly been observed in poisoning by other solanaceous alkaloids (such as atropine, duboisine) as shown, for instance, by Doctor Hilbert himself in his "Pathologie des Farbensinnes" (Halle, 1897).

Free vomiting was established by homely means, until all vestiges of the berries were removed, then a little cold milk was given to drink (for the gastric irritation), and the girl was well again next day, barring some still disturbed accommodation, lack of appetite, lassitude, and pallor; the red vision had disappeared, and in five days she was in normal health. Spontaneous purging also had aided in carrying out the poisonous substance. Although the symptoms had been severe, this rapid recovery under such simple treatment must be ascribed to the early and complete removal of the offending berries.

Briefly, the symptoms exhibited were: vomiting (later purging—but both aided by copious drafts of warm water), gastric pain, headache, dizziness, cardiac palpitation, anguish, flushed face, dry skin, pulse rate of 120, and occasional intermission of pulse-beat; besides the visual disturbances. The heart-sounds were pure and clear.

For the sake of completeness, and, as a mind-refresher, we may repeat here the author's enumeration of the principal allied solanaceous alkaloids, all of which are closely alike in their physiologic and toxicologic action; namely: atropine, from atropa belladonna and nicandra physaloides; scopolamine [hyoscine], from scopola atropoides and hyoscyamus niger; duboisine, from duboisia myoporoides; hyoscyamine, from hyoscyamus niger; daturine, from datura stramonium. This list does not take account of the many minor principles present in the plants named and still other species of the same family of mydriatic plants nor of those allied principles formed as the result of chemical changes during extractive manipulation. Of course, there must be added solanine, from solanum dulcamara—the one under consideration. Other constituents of this latter plant are, dulcamarin and sugar.

STROPHANTHIN, STROPHENA, AND DIGITALIN

The intravenous administration of strophanthin has this great advantage over digitalis medication, that the influence upon the heart is secured very much sooner; only, unfortunately, declares G. Modrakowski (*Korr.-Bl. f. Schweiz. Aerzte*), this principle can not be administered subcutaneously or intramuscularly, because of the marked local irritation caused by it. In order to overcome this latter objection, a Swiss firm has perfected a dialyzate of the fluid extract of strophanthus (on the principle of the digitalis dialyzates) and is marketing this under the trade-name of strophena. Modrakowski affirms having found this new preparation eminently satisfactory and free from the objectionable action indicated, while, introduced intramuscularly, producing free diuresis within a few hours.

Quoting the foregoing, Doctor Traugott, of Frankfurt a. M. (*Ther. Monatsh.*, 1915, p 402), opposes the author's position; for, at least, g-strophanthin and strophanthin-Boehringer are classed among the nonirritating digitalis-preparations (Holste: *Ther. Monatsh.*, 1914), while Loeb and Loewe have informed him that they have found the irritating properties of the latter negligible in comparison with those of the digitalis preparations now so largely introduced intramuscularly.

THE TYPHOID-FEVER CARRIERS

Medical investigators are still looking for some dependable remedy capable of ridding the intestinal tracts, of those infested, of that objectionable and dangerous organism, the bacillus typhosus. In a paper published in *The Lancet* for March 11 (p. 566), Doctors Stokes and Clark present records of an experimental study of some 800 convalescents from typhoid fever.

According to these statistics, 4 percent were temporary carriers, with the germs located in the intestinal tract, and 4 percent were temporary carriers, with the germs in the urinary tract, while 1.6 percent were chronic intestinal carriers and 0.24 percent were chronic urinary carriers. It is shown again that females are more frequently chronic carriers than are males, the incidence of female chronic carriers being nearly three times that of the males.

Various methods of treatment were tried, with a view to ridding these carriers of the Eberth bacillus. For instance, salvarsan injections were tried in 2 cases, but did not alter the condition in the least; both patients continued to excrete the germ by the stool for some time afterward.

Of the temporary urinary carriers, only two of the 33 found became chronic carriers. These 33 were given urotropin (hexamethylenamine) for about ten days, and then after an interval of about one week they were again examined. In all, the tests, without exception, proved negative on four consecutive examinations. The two patients who excreted bacilli after the twelfth week from the beginning of the illness had both suffered relapses in a late period of convalescence.

Both these patients were benefited by the urotropin course.

HYPERTHYROIDISM RELIEVED BY QUININE-AND-UREA INJECTIONS

The symptoms accompanying exophthalmic or toxic goiter are too well known to require description. These symptoms are due, presumably, to an excess of thyroid secretions, or, as it is also known, to "hyperthyroidism." Accordingly, Leigh F. Watson (*N. Y. Med. Jour.*, April 22, p. 791) states that the symptoms can be relieved by injections of a concentrated solution of quinine and urea hydrochloride. It is to be understood, of course, that this does not remove the goiter itself—merely, in part, the symptoms.

Considerable care is necessary in making these injections, since one who is inexperienced may puncture the trachea or plunge his needle into some of the large blood-vessels. Also, an excessive dosage will produce symptoms analogous to those of myxedema or of the removal of too much thyroid tissue by a surgical operation.

To minimize the slight pain caused by the injection, Watson recommends the preliminary injection into the gland of a few minims of sterile salt solution, followed by sterile water, in order thereby to prevent an acute attack of hyperthyroidism, which otherwise might follow the slight pain of the quinine and urea infiltration.

We know that the symptoms of exophthalmic goiter may be and often are relieved by quinine hydrobromide, taken by the mouth, in 5-grain doses, three times a day, alone or in association with ergotin. This is Forchheimer's treatment.

THYROID POVERTY AS A CAUSE OF PYORRHEA

The battle regarding the etiology of pyorrhea still goes on. Probably the majority of our investigators are convinced that the amebas are the essential etiologic factor; nevertheless there are many who are convinced that the affection is of bacterial origin.

Professor Talbot, as the readers of this journal will remember, considers pyorrhea as essentially of a metabolic nature and associated with a condition of acidemia. The latest theory coming to our notice is that of Dr. Heinrich Stern, of New York City, who, in *The Archives of Diagnosis* (see that journal, 1915, p. 236), implicates the thyroid gland, believing that at least in a certain proportion of gingeval lesions "these are a part manifestation of myxedema or minor degrees of hypothyreosis, and that these lesions disappear, together with the other phenomena of thyroid insufficiency, on the introduction of thyroid-therapy."

In support of this theory, Doctor Stern quotes from the records of some 52 cases of hypothyroidism. He says that 14 of his patients presented more or less pronounced gingeval symptoms. Although all had received dental treatment, the results obtained were indifferent. The administration of from 3 to 9 grains of thyroid gland daily for six to fourteen weeks was followed by a complete cure of the gingeval inflammation in 3 instances, improvement in 5, and slight improvement in 2. The condition of the remaining 4 was not ameliorated after three or four months' administration of the drug.

This therapeutic hint is worthy of further investigation, but we should advise no one to depend upon thyroid medication to replace therapeutic methods of established value, as, for instance, the use of emetine, which, while it may, and undoubtedly does, fail at times, is just as undoubtedly proving a splendid success in very many instances.

EPILEPSY OF INTESTINAL ORIGIN

It has long been recognized that in some way, not yet clearly understood, the intestinal tract plays a part in the etiology of the convulsive seizures of epilepsy. Dr. C. A. L. Reed, of Cincinnati, recently has evolved the somewhat startling hypothesis that back of the intestinal trouble in these cases is a specific organism, which, in some way, directly gives rise to the epilepsy. This still is an unproven hypothesis, but there can be no doubt in the mind of any man who stops to think this matter over carefully that in some way the intestinal tract is largely responsible for this malady, just as it is for so many other ailments.

More evidence in support of this belief is submitted by Dr. Edward E. Cornwall in an exhaustive study of one case of epilepsy, as presented in the July number of *The Archives of Diagnosis*.

The patient was a young man 21 years of age, a student at Columbia University, there being nothing in his family history suggestive of epilepsy. His first seizure occurred in 1913, and since then, at frequent intervals, he has had attacks of unconsciousness asso-

ciated with convulsive muscular movements. These attacks came on at short intervals, in some instances being less than a week apart. He observed that "at the time of these attacks and for short periods before and after he suffered from a coated tongue, bad taste in the mouth, foul breath, belching of gas from the stomach, intestinal flatulence, giving off offensive gases from the bowels, and constipation. He also suffered from these symptoms, though in less degree, off and on between the attacks."

An x-ray examination following a bismuth meal showed that he was suffering from a coloptosis, the transverse colon resting in the pelvis, with the ascending colon extending 1 1-2 inches above the iliac crest and the descending colon 3 or 4 inches above the iliac crest. There was dilatation of the terminal portion of the ileum, insufficiency of the ileocecal valve, but no distinct obstruction anywhere in the course of the intestinal canal and no particular stasis except in the terminal portion of the ileum. Constipation, however, was troublesome and showed a tendency to persist, unless relieved by means of laxatives.

The patient was placed upon a laxative diet, including also "lactacidized milk," and laxatives of various kinds were administered. Exercise was prescribed for him, to be performed before going to bed. The result was a greater regularity in the movements of the bowel, while the premonitory symptoms of the epileptic seizures became less prominent and also less frequent, and, most important of all, the interval between seizures became longer and longer and the attacks themselves were less important.

Isn't it striking how frequently investigation into the origin of disease leads us straight back to the alimentary canal? Of course, we do not mean to imply by this statement that a course of cathartics or a modification of diet is going to "cure" *every* case or, for that matter, *any* case of epilepsy; still the frequency with which the symptoms of that disease are modified and the fact that sometimes they disappear entirely when the bowel function is given the conscientious, consistent, and continuous study that its importance demands, should open the eyes of some of our clinicians.

Whether or not Reed is right as to there being a specific bacillus, we are convinced that at some time investigation of the bacterial flora will throw a great flood of light, not alone upon the etiology of epilepsy, but upon the etiology of a whole brood of other diseases of obscure origin as well. Meanwhile, clean out, clean up, and keep clean.

THE INJECTION-TREATMENT OF HEMORRHOIDS

English medical journals, in particular *The Lancet* and *The Practitioner*, have recently published a number of papers regarding the injection-treatment of hemorrhoids. This method seems to be much more in favor in Great Britain than it is in this country. In CLINICAL MEDICINE, last month, we reprinted a paper on this topic by Arthur S. Morley. In a letter published in *The Lancet* for April 15, F. Swinford Edwards comments approvingly upon Morley's paper and then presents his own very extensive experience with the injection-treatment.

Inasmuch as Edwards has operated upon some six thousand cases of hemorrhoids, he may safely be called an authority in this field and yet, he is a frank advocate of the injection-method of treatment. To quote his own words: "I cannot put it stronger than by saying that, if I were the subject of uncomplicated reducible internal hemorrhoids which called for operative interference, I should select injection in preference to any of the recognized operations; always provided that it could be carried out by one who had had at least *some* experience with its simple technic."

The great advantages of the injection-treatment, says Doctor Edwards, are as follows: (1) No confinement to bed, excepting for a few hours when possible; (2) no anesthetic, and therefore no postanesthetic vomiting; (3) no pain; (4) no enforced absence from business; (5) no risk from the little operation itself and no risk of stricture or incontinence following; and (6) immediate and steadily increasing betterment.

Of course, Doctor Edwards does not believe that every case is suitable for injection. Those which should be treated in this way, he says, are the uncomplicated internal hemorrhoids, which can be protruded, then returned and kept within the bowel.

Those cases that require subsequent attention in the hospital are subjects admitted for operation and who have, in addition, one or more of the following lesions: external tags, fissure, hypertrophied papillae, ulceration, even fistulae, or when the piles are of the internal-external variety.

Doctor Edwards, in treating hemorrhoids, employs an injection-fluid of the same strength, as that of Morley's, namely, 20 percent of pure carbolic acid in a mixture of equal parts of

water and glycerin. Formerly, he used a 10 percent solution of the phenol, but found, upon increasing the percentage of the carbolic acid, that recurrences were less frequent, while, moreover, the stronger solution is painless, and the other not.

Doctor Edwards describes his procedure as follows: "The piles having been protruded, possibly with the aid of an enema, the patient is placed in the knee-elbow position, with the buttocks opposite a good light. The parts are then sponged over with some antiseptic, say, lysol in water, and the injection made through a sterilized needle. From 3 to 6 minims of the carbolic solution is injected into the center of each pile, in turn. In large piles, I often inject 5 minims in two places. The piles are then smeared with vaseline or sulphate of iron ointment and *returned as soon as possible*, for, the injection always causes the hemorrhoid to swell; therefore, the longer they remain outside, the more difficult they are to return. I advise to prevent action of the bowels for forty-eight hours; and, should prolapse occur in the meantime, immediate replacement is essential."

Unlike Morley, Edwards injects the piles after they have been protruded, returning them immediately afterward. He agrees with Morley as to the desirability of injecting all of the piles at one sitting. While various other writers advocate injecting one pile at a time, Edwards can see no reason for this, and it seems to him an unnecessary loss of time. Piles that cannot be protruded should be left alone. They can be cured by palliative means, such as local applications, enemata, attention to diet, and regulation of the bowels.

THE HARRISON ANTINARCOTIC ACT

We find an excellent and very accurate review of the operation of the Harrison antinarcotic law in the London *Lancet* for April 1 (p. 738). As this journal points out, a year's experience in the operations of this law has demonstrated, "not only that the act was capable of smooth administration, but that during the period during which it has been in force there has been no sensible increase in the smuggling of the class of drugs which the act was designed to control." It is also stated that the larger wholesale dealers in drugs are quoted as saying that the sales of drugs of this kind have been reduced by 70 or 80 percent, while retail dealers are agreed that the amounts supplied to the public have been materially restricted.

Some comprehension of the significance of this act can be reached from the official report of the first year's experience, in which it is stated that 140,000 medical practitioners, 42,000 dentists, 1100 veterinary surgeons, 40,000 druggists, and 400 manufacturing pharmacists have been registered under it.

That the government is thoroughly in earnest in its efforts to enforce the law to the letter, is shown by the further fact that the number of convictions thus far registered under the law is 314. How large the number of suits now pending is, we do not know, but it must be very considerable. "A fair idea of the strict manner in which the Act is being enforced," says *The Lancet*, "can be obtained from the fact that a registered person was fined for selling cocaine to a duly qualified medical practitioner whom he understood to be registered under the act, but who was not, the court holding that the plea that the seller had good reason to believe that the purchaser was entitled to buy cocaine was worthless."

Again we would urge every reader of this journal to exercise the utmost care in complying in every detail with the requirements of the Federal Antinarcotic Law. We believe that many physicians are careless, that they are taking chances. No man who values his reputation and his future can afford to do so.

CHLORAMINE: A PROMISING NEW ANTISEPTIC

Some months ago, we published in these pages reports of the remarkable results obtained, by Carrel and Dakin in France, with a modified Labarraque solution, (chlorinated lime treated with sodium bicarbonate, and boric acid), the solution being employed for the irrigation of wounds; particularly in the military hospitals. In a later paper, published in *The British Medical Journal*, Dr. H. D. Dakin (who, by the way, during the war, has been representing the Rockefeller Institute in France), suggested that it is among some of the chlorine-embodying synthetic compounds that the ideal antiseptic might possibly be found.

Among the compounds suggested by him, paratoluenesodiumsulphochloramide finally was settled upon as likely to be the most useful. A careful test of this preparation has been made, and the results obtained were reported in *The British Medical Journal* for January 29. This substance is a whitish powder giving off a slight odor of chlorine

when dry, but odorless when in solution. It is stable, nontoxic, and superior in antiseptic powers to phenol and other antiseptics generally in use. The solution may be used freely for irrigating wounds, since it is noncaustic and nonirritant.

The name *chloramine* has been suggested for this substance, and one English house has actually put it on the market under this designation. Unfortunately this name had already been adopted by another pharmaceutical manufacturer who applied it to another product.

Our readers will be kept advised about any further details published concerning this promising antiseptic, which, so far as we know, has not as yet been introduced in America.

SYNTHETIC ALBUMOSES FOR TYPHOID FEVER

A noteworthy announcement is that made by Professor Luedtke, of Wuerzburg (*Muench. Med. Woch.*, 1915, p. 321), who asserted having had some very promising results from the intravenous administration of synthetic deutera-albumose in 2 and in 4 percent solution. Defebrilization was rapid. Since the preparation of deutera-albumoses is much less laborious than that of specific serum, while the beneficial effects are equally good, Luedtke considers wider experimentation decidedly advisable.

INTRAMUSCULAR INJECTIONS OF MERCURY SALICYLATE FOR SYPHILIS

Dr. Wm. H. Best has great faith in the efficiency of mercury salicylate, given by intramuscular injection, in the treatment of syphilis. He takes sharp issue with Nelson and Anderson, who, in a recent paper, have questioned the efficiency of this drug, as checked up by the Wassermann reaction. Doctor Best believes that the failures of the two doubters are not ascribable to the drug, but to the method employed by them, in addition to giving too small doses. In a paper published in *The Medical Record* for March 11, (p. 473), Doctor Best reports a number of cases, and shows by the Wassermann-test reports that the effect is all that could be expected from this mercury compound.

Doctor Best's aim has always been, to keep the patient up to the point of saturation with the mercury salt, and, as evidence of this, he looks for slight salivation, a metalic taste in the mouth and a slight sense of tenderness when the patient bites on his teeth.

The patients are instructed to pay great attention to the oral cavity and the intestinal canal. A heaping teaspoonful of sodium phosphate in water is taken every morning directly on rising (any other laxative saline will, of course, answer the same purpose), and he is told to drink copiously of water. As an extra precaution against ptyalism, these patients are also given tablets of atropine sulphate, 1-150 grain, one to be taken if salivation becomes marked at any time following a mercurial injection; the same dose to be repeated in eight hours, if necessary, followed by a dose of magnesium sulphate.

The usual beginning dose of the mercury salt is 1 grain. This is increased by 1-2 grain at each injection, up to the point of tolerance. The interval between injections is not definitely fixed, but, as a rule, they are given once a week. Occasionally it is desirable to omit one treatment, as when, for instance, there is retardation of absorption, induration at the seat of injection, ptyalism, excessive sensitiveness of the gums or irritation of the kidneys. However, if the excretions are properly attended to and hot sitz-baths and massage are indulged in frequently, such postponement of the injection is rarely necessary. Of course, when a patient is under intensive treatment of this kind, the toxic effect of mercury upon the kidneys should be kept in mind and the urine examined frequently. Doctor Best is accustomed to examine for albumin at each visit, and, if he finds more than a trace of it, a subsequent microscopical examination is made for casts.

The inconvenience sometimes complained of as a result of injections of mercury salicylate is due largely to faulty technic. While it is impossible to make these injections absolutely painless, the soreness experienced and the induration produced may be reduced to a minimum by taking care that none of the drug suspension is deposited in adipose tissue.

Doctor Best finds that women are prone to suffer more from these injections than do men, and this he believes to be owing to the fact that women have more fat deposited about the buttocks, and that, as a result, the fluid is more likely to be deposited in the adipose layers than in the muscle.

In order to overcome the objection alluded to, Best now uses a longer needle (length 2

inches); also, as a further precaution, he withdraws the needle quickly, and immediately exerts pressure upon the site of injection, massaging deeply but gently for a few moments, in order to prevent the suspension from leaking back ward in the track of the needle and thereby penetrating into the adipose tissue.

Should undue tenderness or induration occur, the patient is instructed to take a hot sitz-bath for ten or fifteen minutes each night before retiring, massaging the affected area all the time.

Of course, other indicated remedies are used in association with the mercury salicylate. For instance, in tertiary syphilis, he gives potassium iodide in ascending doses, while in the earlier forms salvarsan or other remedy is given, as may be required.

SODIUM CACODYALATE IN SYPHILITIC EYE DISEASES

On another page we have printed a communication from Doctor Barnett of Philadelphia, who is inclined to doubt the therapeutic efficiency of sodium cacodylate. He is especially skeptical as to its value in the later stages of the disease, and it is quite true that the majority of clinicians recommend it principally for primary syphilis. However, there is abundant evidence that it has decided therapeutic merit, even in advanced cases. This is attested by a report given before The Practitioners' Society of New York several years ago by Dr. C. S. Bull, and reported in *The Medical Record* for January 14, 1911.

On that occasion Doctor Bull reported three cases of syphilis of the choroid treated with the sodium cacodylate, the first being one of inherited syphilis, the patient first being seen when he was nine years of age. There was an extensive peripheral choroiditis, in the atrophic stage, with myopia and astigmatism. An acute attack of the disease appeared in the left eye, with rapid loss of vision. Mercury and potassium iodide were tried, both by inunction and hypodermically for three months, without effect, the patient becoming practically blind. Thereupon Doctor Bull tried an injection of sodium cacodylate into the buttock. The following day there was improvement in vision. Two other injections were given in the next few days, and on the ninth day after this treatment was begun, the vision had risen to two-sevenths normal and the vitreous had become so clear that all the details of the fundus were visible.

The second patient was a man 32 years old, suffering from acquired syphilis of three years' standing. He had been treated with mercury and potassium iodide for fourteen months, and five months before Doctor Bull saw him had an attack of iritis and choroiditis in both eyes, and the vision was reduced to the counting of fingers. This patient was also given the sodium-cacodylate treatment, with immediate improvement. After three weeks the vision was 20-30 plus, that is, it was two-thirds normal.

The third case was that of a man of 27, with acquired syphilis of five years' standing. He also had been treated with mercury and iodide of potassium, and he was suffering from a large gumma on the upper lid, and another gumma of the sclera of the right eye of several months' duration. Under the cacodylate treatment the gumma of the lid began to soften, and after the fourth injection was entirely absorbed. The vision in both eyes was greatly improved.

In the discussion of these cases, Dr. W. A. Starr said that he had used the sodium cacodylate very frequently and with no ill effects; also that it was a much favored remedy in France. He declared that there was no remedial agent which acted so rapidly in general anemia and neurasthenia, for in both it had a remarkable stimulant and tonic action and in chronic functional diseases produces an extraordinary effect.

This brief report is reproduced at this time to give the readers of this journal some idea of the character of the reports which have appeared from time to time in the literature. As to the value of sodium cacodylate, not only in syphilis and pellagra but also in neurasthenia, anemia and even in tuberculosis, there can be little doubt. Like other drugs, it has its limitations, and these will be more clearly understood and the remedial virtues more fully appreciated when it has received further study. We shall appreciate reports from our readers.

IODINE FAVORING GROWTH OF TISSUE CULTURES

A. Pitini, of the Pharmacologic Institute of Palermo, has observed (*Arch. d. Farm. Sper.*, 1915; cf. *Ther. Monatsh.*, 1915, p. 270) a decidedly favorable influence of iodine upon cultures of certain animal-tissues. The author draws a parallel between this action *in vitro* and the stimulation of diseased lymphoid and tuberculous tissues by the same agent.

Miscellaneous Articles

Therapeutic Ignorance

ONE who has any interest in materia medica and therapeutics very frequently comes in contact with some physician who seemingly has only a transitory education in these rather important branches of medicine. It is surprising to find how very little is known by a considerable number of our medical men, and more especially those who entered it during the days when therapeutic nihilism was rampant.

Not long ago, I was called in consultation with a man who came into the practice about ten years ago and who seemingly possessed no general education even in materia medica, to say nothing of applied therapeutics. We had seen the patient and returned to his office, where we were to prepare the remedies agreed upon. On looking over his shelves together, we ran across two or three drugs about which he confessed having little or no knowledge. In his search for the drugs we desired, a bottle of echinacea was picked up by him, then stood aside, with the remark that what he happened to know of it amounted to almost, if not absolutely, nothing—that what he did not know about it would fill a good-sized volume. A moment later, lobelia came to hand and was passed, with a like observation on his part.

He then ventured to ask what these two drugs were being suggested for, more particularly echinacea. He said he had seen something about that drug in some of the ultrascientific journals, but that those articles had not favored its use, and he believed it had been pronounced inactive, according to laboratory tests. Regarding lobelia, his lack of information was nearly as great, although he did admit that he knew the drug, given in sufficient quantity, acted as an emetic, but also that he had been told that it was dangerous to use. He did not know that it had any antispasmodic or relaxant action. Again did he quote the ultrascientific publication, as well as his teacher of materia medica and therapeutics.

I suggested that there might possibly be others who had employed both drugs, and with good results. "But," he objected, "such men are not authorities and they have not made laboratory tests." He insisted that as long as the laboratory men maintained that a drug was either inactive or too active to be safe it should not be handled by the average physician; nor did he think that any particular attention should be paid to them.

For the treatment of the patient, who was in the sthenic stage of acute pneumonia, I suggested a combination similar to the dosimetric triad, and the doctor could not understand why strychnine should be combined with aconite or why digitalin should be given at all in that stage. I also suggested that veratrum might be employed instead of the strychnine in the present case, as suggested by indications for the elimination of toxins; and he did not even know that the drug favors elimination. All that he knew was, that it serves to slow the pulse and reduce temperature, with a possible depression of the blood pressure.

When it came to dosage, the doctor asked what the dose of tincture of aconite might be. I replied that the U. S. P., 8th Revision, gave the average dose as 10 minims; but he insisted that never more than 3 minims was given, and probably less. Not having a dose-book at hand, I did not contradict him; besides, I did not think it necessary to give the full U. S. P. dose, but suggested giving 1 minim at short intervals.

After we had agreed as to the drugs to be employed, he wanted to know why drug the patient at all, when the disease was one of the "self-limited" kind and the patient would recover, or else die, despite all we might do? I replied, why then call a doctor at all, if he only were to sit idly by and watch the various phases, with nothing more to be done by him? I asked him if he had ever seen or known of pneumonia being aborted,

or at least abated, by the employment of the proper indicated remedies. He admitted that he had not, nor did he believe that anyone else had; adding the time-honored remark that, if anyone had said anything of the sort, there must have been a diagnostic error and that there had been no true pneumonia.

The doctor had already given calomel and a laxative saline prior to my arrival, so that the patient's bowels were well cleaned out. I suggested the use of an intestinal antiseptic, whereupon he asked why the indication for that in pneumonia—that the gut was not involved, and he could not see why it should receive such attention. I told him that I had found that clearing out the bowel and keeping it clean prevented accumulation of toxins and favored greater elimination of toxin-producing material. Again there came the other time-honored assertion, that it was impossible to render the whole bowel, with its numerous twists and turns, clean or even partly aseptic. This I did not dispute, but told him that my observations were that, with intestinal fermentation controlled, there seemed less liability to delirium, and that the other conditions in connection with the disease seemed to yield more readily to treatment; while, in addition, a patient with a clean bowel suffered little or none of the slight abdominal distress so common to all sick persons. His education having been to the contrary and he not being willing to be re-educated along this line or even to try out a remedy, so that he might see the possible effect, such as had been suggested, the antiseptics were not employed.

When it came to the question of dosage, although we were not employing the active principles, I suggested small amounts of everything given, and these to be administered at frequent intervals. Here again it was found that a new proposition was lined up for his consideration, and he could not understand how we could expect results from such minute doses—that he had been in the habit of giving the full doses at longer intervals. He could not understand why the drug effect was reached at all. This was explained to him, and finally my suggestions were accepted, and results entirely unexpected by him were obtained.

He added whisky to his line of treatment, and I asked why the need and whether the strychnine did not assure as good, if not better, stimulation. He replied that he had been taught invariably to give alcohol in some form in this disease and that it was a matter of routine with him. In this particular case, there was more or less delirium, and I suggested that the whisky possibly might increase that condition. I also suggested that there was every indication of toxic poisoning, so, why add another toxin or toxin-producing agent. But he could not see it that way, so, the whisky was given for a few doses, until it was found that the delirium persisted; when, upon my suggestion, it was withheld. Within about two hours, owing to the effect of the aconite and veratrum (particularly of the latter, in all probability), the delirium began to subside and with it the pulse and temperature, and the patient fell asleep.

While we were talking over the case and searching for drugs to be used, we ran across some galenicals that were far from being in proper condition, and I asked why he did not employ more of the alkaloids and other active principles. His reply was that he had been taught that most of the alkaloids were too potent for general use and that he did not care to take any chances with them. I asked if he had given them much study, and his reply was negative. When I said that I wished that I had aconitine instead of the tincture he had in stock, he remarked that no one in his proper senses would employ that alkaloid—that it was too dangerous to use. I told him that I had used aconitine for upward of ten years and had never seen any bad effect whatsoever that could be traced to the drug, and he "guessed" that probably I was working with an inert preparation and that my lack of mishap was due to that fact. I replied that the product might have been inactive, but that, when exhibited properly and to meet exact indications, I had seen both pulse and temperature drop in a most satisfactory manner and without a single contrary or undesirable effect. Then he asked if I did not consider my results as coincidental, rather than due to drug effect This I denied, saying that the aconitine had been tried out too frequently and with such uniform results as to wipe out the question of anything like coincidence. I asked him why, if so fearful of aconitine, he employed the tincture of the root, which owed its action to the alkaloid contained. To this he could give no rational answer, and fell back on his plea that the segregated alkaloid "seemed to be more potent" than that contained within the crude-drug extract.

On another occasion, while caring for his practice for a day, I was called on by a man suffering from intestinal fermentation. Hav-

ng nothing else at hand, I exhibited aspirin, and was asked, Why? I replied that an intestinal antiseptic seemed indicated and that, while other agents might be better than the one employed, like all salicylates, it probably or possibly might have the desired effect, and that I used it for the lack of something really better. The doctor said my ideas might be all right, but again insisted that the bowel could not be rendered aseptic. However, for some reason, the fermentation was overcome and the man returned to work the following day, minus any intestinal distress.

Then I asked the doctor why he did not place intestinal antiseptics in stock and employ them in such cases, and his reply was a good deal like the one appearing in some of the ultrascientific journals—that such drugs or chemicals were greatly overrated, and he could not see any real reason for their use. He said that a cleanout, followed by a dose of paregoric, did the work very well for him. I asked how many recurrences he had, and he was forced to admit several such. I told him that with the intestinal antiseptics I rarely, if ever, saw a recurrence of any acute bowel disturbance, but this he would not believe, as he said the "authorities" asserted to the contrary.

These are a few of the examples of therapeutic ignorance shown by one man. In my travels, I have found many more of like sort, until I have about reached the conclusion that, with many doctors, very little is really known of the right remedies to employ or of their indications. I have found this more especially true of the younger men—those who have come into practice within the past ten or twenty years. The majority of these have had the U. S. P. and N. F. so firmly fixed in their minds that nothing outside these two books, so far as they are concerned, is worthy of even the slightest consideration.

The man in question entered into a tirade against some of the proprietaries, but when I called his attention to some products on his shelves which he was employing daily he said they were N. F. formulas. I asked him if he did not know they were substitutes for proprietaries, but this he would not admit. He said he did not know anything about the latter and, furthermore, did not care for any such information. He said that at least one good (?) "authority" said that proprietaries should not be employed, and that we should not question that assertion, especially we who were not possessed of laboratory facilities to offer a final basis for argument. I asked if he did not consider clinical manifestations worthy of attention, and he said no, not in the face of the findings of the "authority" in its laboratory. I asked him if he did not think it possible that a drug might be effective when administered to a sick person, though inactive when given to a healthy animal, and he replied that, if it were not active in the latter case, it surely could not be in the former.

With such crass ignorance about the tools of our trade as is shown by a goodly number of doctors, it is great wonder that the public is not more disgusted with us than it is. When we admit that "nature must take its course" and that all we can do is to tell the patient with what disease he happens to be afflicted, and then sit idly by to see him either die or recover, we must expect nothing but disgust and distrust. We must expect to see the cultists and faddists live and thrive.

The time has come when the medical profession, as a whole, must inform itself as to how best to treat the many abnormalities confronting us. Men must know what drug is indicated under certain specific conditions and how best to employ it. They must study therapeutic specificity to a greater extent.

Much is being written and said at present about "borderline diseases," and there is much discussion as to whether they shall remain with the internist or go to the surgeon. It is my belief that, as we give better study to our internal therapeutic agents, fewer of these cases will go on the table for operation. We are seeing a return of the gastric- and duodenal-ulcer cases to the internist; and this despite the fact that the surgeon has worked out an admirable technic and taken good care of such cases. We are seeing some of our appendix-cases, those in the catarrhal stage, doing pretty well under medical care and without operation. It may be true that we do not get complete recoveries in this latter disease, but we do relieve the patients of the many discomforts that occur after operation, and keep them in fairly good, working health.

We of the regular school are too prone to find fault with and ignore those men of other medical faiths. This is particularly true of the Eclectics. If the truth were really known, it probably would be found that men of that school could teach us much regarding the proper application of therapeutic agents. I have followed up and applied some of their teaching, and with very good results. They

were the ones to introduce the idea of small and frequently repeated doses, and today we find the regulars, to some extent at least, adopting this method of medication, and with good results. I am not saying that we should use their "specific medicines," even though they may be, and very probably are, active. No matter what the drug-preparation may be, whether it be alkaloid, glucoside, resinoid, tincture, extract or fluidextract, the Eclectic idea of dosage still remains good, and is, I believe, from personal observation and application, the proper one to employ.

However, no matter what method we employ, we must have a better idea of the things that we should employ in the treatment of the sick. We must be broader of mind, and not depend to such an extent upon what someone else tells us, but base many things upon our own, individual observations and upon the findings of many.

If one follows the books to any considerable extent, he will find, when it comes to discussion of treatment, that the authors copy very largely from those who have gone before. Some of the writers show some initiative and some accept the ideas of the rank and file, rather than of those men who are doing consultation work, very largely as diagnosticians, and who rarely follow any case from start to finish.

We should quit confining ourselves to the reading of just one or two medical journals, but hunt out information in the many—even in some of those which are subject to the ridicule of the ultrascientific ones. The man in the field, if successful (and a good man is) is not wholly without a working mind, and it is my belief that at times his opinion is worth as much as that of the man who sits upon the pedestal of authority. The former sees every phase of his case and combats every little change, and, so, gets a better idea of what is good or what may be bad. He gets his ideas from the practical application of his remedial agents in the treatment of the sick human, and, as he is very frequently successful, his methods cannot be all wrong. We have noticed that the backwoods doctor, in the vast majority of instances, has no greater mortality than does he of the metropolitan hospital; so, why not accept what he has to offer?

But, why argue when it is a self-evident fact that we must increase our knowledge of things therapeutic if we would see our profession and its members thrive, prosper, and do good work? There is no excuse for therapeutic ignorance when an adequate knowledge of drugs is essential to success.

GEORGE L. SERVOSS.

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CALCIUM SULPHIDE AN ANTIDOTE FOR MERCURY POISONING

In the March number of CLINICAL MEDICINE (page 253), we published a brief statement regarding the use of calcium sulphide as an antidote for bichloride of mercury poisoning. This report was made by Wilms, who cited some very remarkable cures in apparently desperate cases of poisoning with this chemical.

At the last meeting of the Illinois State Medical Society we learn from the newspapers, Dr. B. Merrill Ricketts, of Cincinnati, gave a further report of the use of calcium sulphide for its antidotal effect. Doctor Ricketts made the statement that this treatment was worked out in his own laboratory, and he related several instances where the treatment had been successfully tried. One California woman, he said, had taken 80 grains of bichloride of mercury and her life was saved by the neutralizing effect of calcium sulphide.

His directions for administering the drug in cases of bichloride poisoning are as follows: For each grain of bichloride of mercury swallowed, give one grain of calcium sulphide by the mouth every two hours for five doses. If the treatment is not begun until forty-eight hours or more after poisoning has occurred, then the remedy (calcium sulphide) should be given intravenously, the dose being, as already stated, one grain in an ounce of water for each grain of the mercury salt.

This remedy is certainly a simple one; also, it is a remedy which practically every reader of this journal should have in his pocket-case, on account of its exceeding value in the treatment of scarlet fever, measles, whooping-cough and other contagious diseases. When its emergency action is required in a case of mercury poisoning, it is only necessary to administer the granules by mouth in appropriate doses. In order that action may be immediate, it may be esirable to give these crushed with a little sugar. When intravenous medication is desired, there is no objection to using the granules, crushed and dissolved in the necessary amount of water.

This is certainly the simplest antidote for bichloride of mercury ever suggested. It is something which is easily obtained and easily

administered; and if we may believe Doctor Ricketts, it is, by all odds, the most effective antidote as yet discovered.

We hope that every reader of CLINICAL MEDICINE will keep this suggestion in "the front of his head," so that when opportunity arises he will not forget its possibility.

At this point we are tempted to moralize. For years we have been advocating the use of calcium sulphide in the treatment of the various infectious diseases. We have believed, and still believe, it to be the most powerful germicide available for internal medication when safety, nontoxicity, efficiency and ease of administration are all taken into consideration. In our opinion, there is no single remedy equal to it for the treatment of the contagious diseases of childhood, but the physician must be sure of the quality of his drug (for there are few drugs of which such a large percentage of poor quality are on the market), and he must give it in full doses, to effect.

A BETTER METHOD OF UTILIZING CLINICAL MEDICINE

In the April number of CLINICAL MEDICINE, on page 367, is a suggestive article by Doctor Kohberger entitled "An Idea for Utilizing Clinical Medicine." The ideas presented are excellent. Instead of mutilating my copies of the journal, however, I save them and keep an index reference file for articles that I may hereafter wish to refer to. This only requires a few minutes and saves the balance of the magazines, for there are usually several articles in each number that one wishes to save, and in cutting out one article another article of equal importance may be ruined.

For instance, opening my reference file at the letter "C," I draw out a card on which I see "Circumcision, AMERICAN JOURNAL OF CLINICAL MEDICINE, August, 1912, page 787," and other articles likewise. If I consider it advisable, I list the article under two or more heads or letters, i. e., "Chenopodium, oil of, see under 'H' (Hookworm)," and then turn to the letter "H" for the article.

Where I do not wish to save a whole magazine, I clip the article that I wish to save and file it, but I may add that I have preserved my file of AMERICAN JOURNAL OF CLINICAL MEDICINE complete for a number of years, and several months ago found that some copies were missing and at once sent to you for the missing ones. I can not afford to loose any of them.

C. W. TOMPKINS.

South Jacksonville, Fla.

[A ten years' file of CLINICAL MEDICINE from a practical standpoint, is better than a whole library of textbooks. By the use of the index the physician can usually find practical help on almost any subject he may think about. You know how often you will be "stumped" when trying to run down something in the books. We can supply indexes for several years back to those desiring them. No charge.—ED.]

CURRENT COMMENT BY A COUNTRY DOCTOR

Sexology.—Dr. Wm. J. Robinson, of *The Critic and Guide*, certainly handles the various aspects of the sex-question without gloves, at least with skintight ones. Without entering into an extended discussion anent the advisability of birth limitation or, rather, the manner and extent of its advisability, this writer can not but endorse the work of strong, virile workers like Robinson, Jacobi, and others in their efforts to force a better understanding of this complex question by the people and their lawmaking exponents.

The questions relating to sex-ethics are not for the purist to handle; they can be solved only by using the plainest of speech. The idealist, be he theologian or not, who avers that he is accomplishing great results by teaching male continence (most commendable, we will admit) is known, by the medical profession, to be in error. He is accomplishing practically nothing at all in the way of disease prevention or in lowering the rate of illegitimacy, although, by his teachings, he may have preserved a negligible number of young men from sexual immorality and venereal diseases.

Some cities hide the prostitution in their precincts by spreading it, others have their "red-light district," but everywhere there is prostitution. In various ways the evil exists. Go to a settlement on the frontier outposts of civilization's advance, and what do we find? A spread of sexual disease among the natives, often almost to the point of extinction of the native type, together with a "backfire" in disease onto the "higher race." And this rule holds wherever a lower race has not been numerically strong enough to survive the disease onslaught by dilution, or,

unless an "inferior race" be protected by a rigidity of race-purity regulation and seventh-commandment observation outdoing the sternness of the Mosaic code. Examples of the latter are the Yaqui Indians of northern Mexico, who for hundreds of years have maintained comparative race purity, resisting conquest by Spanish and, later, Mexican invaders, and thus still remain a "people" (although Mexican subletting of Yaqui exploitation to American concerns seems to spell Yaqui finish), together with the branches of the Navajo tribes.

On the other hand, glance at what "civilization" did for the Hawaiians and certain tribes of American Indians, the Mojaves, for instance. It has managed to spread the unblessed trinity of the two venereal infections and tuberculosis, besides a few other diseases thrown in as a result of miscegenation.

Such miscegenation proved so baleful to the higher-type race that various laws to prevent its spreading—even to tribal extermination in the case of certain "ites"—were put into the law-books of the Hebrew theocracy. Yet, even the excellent judicial and administrative powers of the Hebrews failed to accomplish as much as did the one religiohygienic regulation of circumcision—a tacit admission of the prevalence of the social evil; an evil of which we speak with hushed voice and which we decline to discuss with candor. The idea of the Jews seems to have been, "Don't do it; but, as you will do it anyway, avoid disease." Other early peoples practiced the same sanitary precaution, but with the Hebrews it was a compulsory religious rite, to be observed in infancy. Moses, that master of ancient hygiene, was strong on plenty of water and all the other prophylactics known in his times.

Why can we not emulate Moses and teach prophylaxis, until we can convert the world to a desirable degree of male continence and so protect our women in their economic environment that an equal financial chance with the male will do away with the prostitute. "Prostitute" is here used in its full sense, and it includes the female who hurriedly has her clandestine meetings elsewhere than in one of those "gilded dens of infamy," those places where the "landlady" and perhaps her special he-imp of Satan rob her until she becomes a "dope-fiend" (or did before we had the Harrison law), but, rather, a room where she (or many of her kind) provides antiseptics, in contrast to her alley-hunting sister of the scarlet robes.

This thing of sex is a big subject, but this writer believes with Dr. Isadore Dyer, of New Orleans, that society is large enough and broad enough to handle it. An ever-dominant factor is the natural polygamous tendency of the male. Go almost anywhere in the range of organic life, even back to the lilies of the field, that trust their reproductive needs to the breezes of the spring; consider the fishes, so liberal with their fertilizing elements that they entrust them to the chance commingling of the waters; then contemplate the higher vertebrates, where nature is so reckless with the seeds that she permits descent to an exposed position of the essential male generative organs; everywhere the same thing is seen. True, there are exceptions to the rule, especially in plant-life; but, the fact is that the male can be looked to for prodigality and the female for conservation. Pretty large subject this to oppose with cautiously chosen phrases; complicated enigma for mongers of sectarian—or even sex—philosophy to deal with; yet, not too vast foı the evolution and progress of our modern age.

Do not leave too much medicine.—Recent writers in CLINICAL MEDICINE have well and aptly treated on this subject; nevertheless, still more can be said about it. When leaving medicine (especially in tablet form) with a patient not having in attendance a well-qualified nurse, it is an excellent rule to avoid, whenever possible, leaving enough of a potent drug to total a lethal dose if given within a short time. Mistakes will happen, and the value of this rule has been proven. Recently the writer had a case exhibiting distressing asthmatic features. Glonoin granules were left with which to control the cardinal symptoms, capillary dilation being the cardinal aim. Directions were written out, as an additional precaution after most careful verbal instructions; also, orders were given to call at the office for further medicine, and at the same time to bring along some of the patient's urine. When the messenger arrived, as agreed, he reported that the difficulty of respiration was gone, but that a horrible headache had taken the place of the original symptoms. This headache was of a kind seldom seen except in those who use nitroglycerin for blasting purposes. Most fortunately, I had not left them enough of those 1-250-grain glonoin granules to work greater havoc than to cause the bad headache. A change of volunteer nurses had been made and my instructions had become badly mixed in consequence. I need not add how we all

know what can happen from the leaving of opiates in the hands of the inexperienced.

Many times lack of intelligent nursing-help will induce the doctor to select a less potent remedy than the one first thought of. This is often a serious problem in country practice, and many a time there is no other way than for the physician himself to remain and see a patient over a crisis; thus spending time that properly belongs to his other patients, mention of his personal convenience being left out altogether.

This is a difficult feature of country practice, but one that can not be avoided and one that can be turned into profit, even if the patient can not afford to pay for the extra time. These delays can be utilized for study, if one always will have with him a late medical magazine or something he wishes to read up on. If one is too tired and too much in need of rest for study, it is a good plan to take the lightest thing obtainable in literature or something pertaining to one's hobby. Anything to relax brain tension, even down to Nick Carter, if that will concentrate attention; this is the real value of light fiction to a professional man and a hard student. The writer actually has known a hard thinker who relaxed tension at times by reading Nick Carter's fiction masterpieces, although personal preference is for Victor Hugo. If one is a follower of the suggestion of the editor of CLINICAL MEDICINE regarding his encyclopedia reading, he will always have a fresh subject of interest and of healthful, mind-broadening character.

Aside from the undesirability of leaving potent energency remedies with a patient, the same plan of limiting the amount under all circumstances should be followed out. One should keep in touch with his patients, not alone so as to observe any change in conditions, but also to maintain over them the ever necessary psychological influence for achieving best results. The sufferer from chronic disease will follow directions better and feel his physician's personal interest in him more if he sees his doctor regularly.

Patients of this class should pay a visit at least once a week under ordinary circumstances, and when they do come in they should receive attention beyond a mere perfunctory refilling of a prescription and a "How are you this morning, Mr. Smith—better, I'm sure?" Have Smith bring some of his urine with him and see what this best index of metabolic activity has to say about it; also, do not forget that his progress may be indicated by a blood-count. Give the patient careful attention in every way, do everything that seems necessary, and then dismiss him with but just enough medicine to last him until his next appointment. Be sure that he knows that he is receiving every needed care and that he will soon see he is getting modern service.

Above all things, do not, when called upon, send by, say, a husband, a bottle of that "same kind of medicine" you gave his wife for her rheumatism. That dollar this man brought along may look good to you, but it is not; you are not a vender of patent medicines. The reason why that medicine did that man's wife good was, because you saw just what her condition was at that particular time. Let that dollar go right back home, and let Mrs. What's-her-name herself come to you with it, and another one besides for her proper examination. The lady would like to have a refill and a copy of this prescription, too, so that she can hawk "doc's" prescription all over God's creation. But, you have no "favorite prescription." *Let that dollar go!*

Those Active Principles.—To one who has always been a believer in "specific medication," with the full understanding that "specific" does not mean specific for a named disease, but specific in effect on certain symptom-groupings, the arrival of a fuller list of active principles means a greater number of accurate remedies at command; sometimes with the necessity of separating the action of an active principle from the action of the whole drug. To one who has been in the habit of grouping therapeutic agents according to their gross physiological action, acceptance of the finer differentiation of specific medication opens a new field and wonderfully increases efficiency of work as expressed in results.

The day of the internist is here, if he will but avail himself of the newer methods of treatment, including the use of the active principles, animal-therapy, the bacterins, the modern agents both for external and internal antisepsis, and up to date diagnostic aids. All these, together with the latest hygiene and rational dietetics.

Let any physician who has never used the active principles select a few having the plainest indications, and before long he will marvel at the broadening of his therapeutic resources and become a successful user of many drugs of which he before knew practically nothing. The man having a thorough working-knowledge of modern therapeutic means for the alleviation or cure of disease

can outdistance his competitor who boasts that he uses only half a dozen drugs in addition to his hygienic prescriptions. The competitor is practically only advance agent for the surgeon or other specialist; incidentally also a recruiting agent for the various drugless fads and fancies that have grown up through spread to the laity of medical nihilism.

If a patient is unsuccessfully treated by a physician who intimates to him that disease is practically self-limited or incurable and that, beyond opening the bowels or giving an opiate, there is no value in medicine, except surgery, no wonder the sick man makes a break for the esoteric egotist, who at least has effrontery enough to give high-grade suggestion.

"Clean out" those patients, then get very busy with the indicated remedy and cure them, thus they will not be added to the vast number who not only keep away from the physician, but are active in their propaganda to keep others away. Don't be so afraid of that word "cure." Never mind if the fossilized living or the revered ghosts of those who departed this life in hide-bound conservatism are, and were, medical nihilists—we do not have to be also.

Rhusoid.—Of the numerous drugs which have received undeserved neglect at the hands of very many practitioners, rhus toxicodendron (just poison-oak or poison-ivy), which has enough latent drug-power to make itself manifest in misery to many, *by such small dosage that they claim to have "just passed by it,"* is one.

Reading a recent symposium upon the treatment of sciatica, the writer saw nothing about the use of rhusoid or of colchicine, but much as to improvement in the technic of the old surgical procedure of "stretching" the nerve, and also something of injections of alcohol or hot water at the nerve site. Cases there doubtless are which call for such heroic treatment, but, many have received this line of attention who, we believe, would have gotten well under rhusoid and colchicine, both pushed to effect.

If the pains are boring in character, relieved by motion, and the pulse is the quick, sharp one of pronounced irritation, the case of sciatica is one for rhusoid, before stretching the nerve or other heroism is thought of. Add to these indications frontal headache, papillæ of tongue red, burning sensation in parts of the surface and pain on the left side, or worse on left side, and an outline picture of a rhus-patient is given.

In all cases of "rheumatism," the first two remedies thought of should be, rhusoid and bryonin to relieve, the symptoms calling for either easily separating themselves. Rhus-pains are relieved by motion, bryonin-pains are made worse thereby, bryonin being a remedy where serous membranes are involved.

Rhusoid is often efficacious in enuresis and in other conditions, but the present mention is of its remarkable efficacy in rheumatoid troubles, *where indicated by the symptoms.*

Rhusoid, bryonin, macrotoid, and colchicine constitute a group of wondrous powers if used accurately according to the symptomatology and in connection with proper elimination—an imperative measure. The entire resources of modern medicine have not been exhausted with a systemic saturation with the salicylates. If the patient is a "chronic," it is a safe wager that he has already been loaded with these, sometimes most essential, drugs.

Take hold of the case in earnest, examine the urine and do all else possible to determine the nature of his "rheumatism." Local applications are at times of aid, especially for the palliation of pain. Where swelling or congestion exists, the hot saturated solution of magnesium sulphate is often without a superior; and it may be applied under oilsilk, thus avoiding frequent changes. The rheumatism combination of Doctor Candler frequently is effective in very stubborn cases, and the colchicine which it contains is a most excellent pain-reliever to alternate with rhusoid or other selected agent. Most of that "rheumatiz" and "gout" can be cured.

A. L. NOURSE.

Sawyerville, Ala.

INTRAVENOUS AND SUBCUTANEOUS MEDICATION

There is a growing interest in intravenous and subcutaneous medication; and as CLINICAL MEDICINE is always "Johnny on the spot" in presenting to its readers everything that can be helpful, we are anxious to have an expression of opinion from as many of the readers as possible regarding this method of treatment. I hope that many of you will tell us, in a brief letter for publication, something about your experience in this line—particularly with intravenous medication.

What is your technic? What kind of syringe do you use? What is the length and caliber of the needles you employ? What precautions do you take against accident? Have you had accidents of any kind? How

much solution do you inject? What remedies do you employ in this way? What are the advantages and what the disadvantages of this method of treatment?

I hope that a great many readers of THE CLINIC will write me. I want a symposium that will be a real symposium.

INTRAVENOUS MEDICATION

While for years I have thought it one of the best of medical journals, CLINICAL MEDICINE is growing better every month.

The May number, particularly, is full of good things, and in this Doctor Neiman's article on sodium cacodylate is especially interesting to me, as I have used this remedy intravenously for several years, and with such splendid success that I have come to believe that most of the failures reported have resulted from too small dosage. As for myself, I give 5, 8, 10, and even 15 grains of the cacodylate, and in more than 1000 injections I have as yet failed to see one bad result follow these large doses.

While we see practically no pellagra in the North, from an analytical study of the diseases and the drug, the cacodylate seemed to be the one remedy to fit a majority of these cases; and in an article published in *The Medical Standard* of October, 1914, I mentioned Elrod's report of a very satisfactory result from its intravenous use in pellagra.

Psoriasis is another disease that responds to the cacodylate in a very satisfactory manner in a good percentage of cases.

I am using a number of other remedies intravenously, and one that is making good with me is the sodium glycerophosphate in sciatica, facial neuralgia, and various other nervous conditions accompanied by pain. Spinal irritation and the pains of tabes are often relieved by the intravenous use of this preparation.

In numerous cases of rheumatism, I get prompt results from the intravenous injection of sodium salicylate and caffeine, especially in rheumatic fever.

These remedies are marketed in sterile ampules, in various-sized doses, convenient for use. No drug should be administered by the venous route unless it can be made sterile without losing its individuality and activity, and it requires care and study to secure this end.

It is really unfortunate that so many physicians are afraid of the intravenous method of administering drugs, inasmuch as the prompt results, with the assurance that the indicated remedy gets into the blood stream unchanged, together with longer intervals between treatments, has advantages over other methods in many ways.

W. N. FOWLER.

Kalamazoo, Mich.

[We are promised a paper on intravenous medication, giving the technic of this form of medication in such detail that the method can be mastered by any competent physician. We hope to be able to print this article within the next two or three months. Useful formulas and many therapeutic suggestions will be embodied in it.

Much that Doctor Fowler says in praise of intravenous medication also applies to hypodermatic medication. Unless the drug is one that is irritant, therefore causing considerable pain, the ordinary subcutaneous route is the one that appeals to most physicians. But there are remedies that should be given intravenously, for one reason or another. And this is "another story."—ED.]

AN OMISSION FROM DOCTOR RITTENHOUSE'S COMMENT

In the May number of CLINICAL MEDICINE, in my comment on Doctor Ewing's article, page 446, second column, the accidental omission of a sentence renders my meaning obscure. The passage should read as follows:

"I apply the Hodge forceps, which I always carry, in the usual way. *Then I pass a strong fillet of gauze through the fenestra of both blades.* An assistant pulls moderately on the handles in the direction of the patient's feet, while I make traction on the fillet downward and backward."

Omission of the italicized words rendered what follows unintelligible. Readers should enter this correction.

WM. RITTENHOUSE.

Chicago, Ill.

SALVARSAN AND SODIUM CACODYLATE

In CLINICAL MEDICINE for May, Doctor Neiman offers sodium cacodylate as a good substitute for salvarsan. As instructor in genitourinary diseases in the Philadelphia Polyclinic Hospital and College for graduates in medicine, I have had the opportunity to study 500 cases of syphilis, the result of which observation will be published later. Many of these patients were treated with sodium cacodylate, both intravenously and intramuscularly, and I have yet to see the case

that showed any marked signs of improvement or any improvement in the Wassermann reaction. I, therefore, cannot permit such statements as those by Doctor Neiman to go unchallenged.

In your editorial, you show how nicely Dr. J. B. Murphy cures chancres with this drug, but he does not tell us how the blood condition will be after he is through. I wager anything that the blood would show a positive reaction. What good, then, is the sodium cacodylate? Knowing this, would it not be criminal for me to try to cure the earliest stages of syphilis with this drug, the stage in which, since the introduction of salvarsan we have hoped to eradicate this disease from the human system?

Let me say here, whether it be Murphy, Neiman or anyone else, that you can not cure syphilis—that is, effect a radical cure—with sodium cacodylate. You cannot with it, improve the Wassermann reaction; in fact, every article that I have read and my own experience have shown that the drug has no effect upon the Wassermann reaction.

Our latest method of trying out this remedy has been, to give as high as 30 grains twice weekly intravenously, yet, the patient did not display any toxic symptoms whatever. And this, I am sure, is a larger dose than any of the authors ever used; and, yet, this great amount has failed to produce any effect upon the lesions and upon the Wassermann reaction.

I recall a case of secondary eruption of about two weeks' duration, in which the patient could not afford salvarsan or its congeners. So, we gave him, intravenously twice a week, 7½ grains of sodium cacodylate (by the way, his Wassermann test showed strongly plus) for 5 weeks, and then 15 grains twice a week for three weeks, and then 30 grains twice a week for two weeks; but this was without any effect upon the Wassermann reaction, although a very slight fading of the eruption occurred. The total cost of this course of cacodylate amounted to nearly as much as two doses of salvarsan would have cost him as a hospital-patient. Would not two doses of salvarsan have removed his eruption and reduced his Wassermann? From my experience in such cases I say, yes. Why, then, use sodium cacodylate?

In another case, one of sarcocele, with the Wassermann reaction strongly positive, 30 grains of the cacodylate were given twice weekly for five weeks, without producing any effect upon the size of the tumor or upon the blood.

What more than these cases do we need to prove the worthlessness of sodium cacodylate?

However, Doctor Neiman used mercury in conjunction with this drug. It is perhaps the mercury in his cases that produces the results; it certainly is the cause of any improvement in this patient's blood. Let him use the sodium cacodylate alone, and he will soon prove this to his own satisfaction.

Regarding the statement in your journal about the Philadelphia arsenobenzol, as to its not being made for profit or sale, you have been wrongly informed. Just look at your page 43, and you will see that you have an advertisement of that very drug, saying that it is for sale.

You say that true salvarsan is not to be had, and this is a fact. And I want to say that it is a Godsend that Doctor Raisiss, the chemist, in conjunction with Doctors Schamberg and Kolmer is working this drug out; because it, and it alone, is the best substitute we have for true salvarsan. It not only will heal the lesions, but will clear up the blood as well.

However, it requires more doses of this latter drug to effect a radical cure than it does of salvarsan. But what of that? I feel that I can safely speak of this drug, because we have used about 100 doses of it, and also I have seen Doctor Schamberg and his coworkers give about 200, and I find that the reaction is very slight. Most patients can go home and do, immediately after receiving the injection, without experiencing any ill effects on their way.

Therefore, I strongly advocate this Schamberg arsenobenzol as a substitute for true salvarsan. There is another substitute, and that is arsenobenzol "Billion," a French salvarsan. But I do not recommend it because the reactions are so severe that 80 percent of the patients must remain over night.

In conclusion, I will say: (1) The best substitute for salvarsan is the arsenobenzol that is made here in Philadelphia. (2) The next-best is the French arsenobenzol Billion, but it has too severe reaction. (3) Sodium cacodylate never will take the place of salvarsan or of its congeners; it is without effect upon the blood. And no luetic can be considered as cured unless the Wassermann reaction is negative and remains so.

CHARLES H. J. BARNETT.

Philadelphia, Pa.

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[We are very glad that Doctor Barnett has taken up his cudgels in behalf of salvarsan,

or its American substitute, arsenobenzol. We certainly do not forget the value of Ehrlich's great discovery, and when salvarsan is obtainable we recommend its use, providing the physician understands thoroughly the technic of its administration. It should be remembered that there have been many accidents and not a few deaths following its use, while sodium cacodylate is practically nontoxic.

We believe, however, that Doctor Barnett has gone to the other extreme in his condemnation of sodium cacodylate. That this remedy has very great value in syphilis is as nearly established as anything therapeutic can be. While it may be true that its administration is not followed by a negative Wassermann, it is equally true that, given in early syphilis, it almost invariably produces improvement in the symptoms and cessation of physical evidences of the disease in a manner which is, as Murphy and others have stated, truly remarkable. The writer has read a number of articles about sodium cacodylate, and thus far he has not found one which denies the value of this remedy in early syphilis. He can refer you to articles by Spivak, Suggett, Caffrey, Bull, Schirrmann, and others, appearing in a number of medical journals.

Of these writers, Louis J. Spivak, who is pathologist and serologist to the genitourinary department of the Jefferson Medical College Hospital, is about as careful and as critical as any. While he agrees with Doctor Barnett that the effect of the drug on the Wassermann reaction is practically nil, he declares that it is "a useful adjunct in the treatment of syphilis, especially where salvarsan cannot be used, either for financial reasons or through some physical condition of the patient." He adds, "Sodium cacodylate is cheap, easily prepared and very easy to administer"; and he also says: "It has a marvelous effect on the initial lesion and on the maculoroseolar eruptions. The action on the papular syphiloderm is somewhat slower, but in large doses it is effective. The drug has practically no effect on the adenopathies. Enlarged cervical, epitrochlear, and inguinal glands persist in spite of massive doses. Mucous patches and condylomata clear up readily without any other treatment. The drug has a splendid alterative effect and can be used for that alone in the course of syphilitic treatment. All patients, whether their lesions were benefited or not, speak of a sense of wellbeing, of added strength, of a better appetite, and even of an increase in weight. On the rupia and tertiary lesions, sodium cacodylate has practically no effect."

It would be easy to submit evidence from a dozen different men of high standing who are enthusiastic advocates of sodium cacodylate, not the least important being, as Spivak says, that "it is nonpoisonous to the human system, even in doses as high as five or six grains injected daily for three weeks, even for a month."

It should be remembered in this connection also that salvarsan is no longer depended upon to cure syphilis. Given early, it may produce a negative Wassermann, but practically always the disease recurs in some form or other unless mercury is associated with the treatment. Therefore, salvarsan and mercury go hand in hand, and I do not know of a single syphilologist of distinction in this country who now depends upon salvarsan alone for perfect cure. The clinical benefits obtained from the use of salvarsan are analogous to those obtained from sodium cacodylate. although the effect on the Wassermann reaction obtained from salvarsan is much more pronounced than that from sodium cacodylate.

As an instance of the faith of one great man in sodium cacodylate, I am reproducing herewith [see next item] the article by Dr. John B. Murphy referred to in our editorial last month. This is the introductory article in the August, 1915, number of "The Clinics of John B. Murphy," published by W. B. Saunders & Co. Doctor Murphy's experience is probably as extensive as that of any man in Chicago—perhaps any man in the country.

We are sorry that we overlooked the advertisement of the Philadelphia arsenobenzol in the last number of CLINICAL MEDICINE. This shows that the editor does not himself read the advertising pages as closely as he should. We are glad indeed to note that American chemists are doing this work, and so far as possible we are glad to support them. We sincerely hope that every reader of these pages who is in need of this preparation will get into touch with the manufacturers, whose advertisement appears again in this issue of CLINICAL MEDICINE, page 43.—ED.]

A TALK ON SYPHILIS

[EDITORIAL NOTE.—The following talk on syphilis is reprinted from the August, 1915, number of "The Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago." This is a bimonthly publication issued by the W. B.

Saunders Company of Philadelphia. The talk which follows is the first article in the number referred to. It is reproduced in its entirety because of the interest now being displayed in sodium cacodylate.]

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DR. MURPHY (October 8, 1914): We have two very interesting cases that came into the office yesterday. The first is that of an engineer who contracted a chancre of the tongue, at its middle, from smoking a pipe that had been used by his syphilitic fireman. At the time of his first visit, eight days previously, we immediately scraped his tongue, excised a piece, and stained for spirochetes, the detection of which confirmed the diagnosis. Then we instituted what we believe to be the best method of treating early syphilis, namely, daily hypodermic injections of sodium cacodylate. I recently recommended salvarsan, but I have returned to my first love, which I originally suggested and used before we had '606.' Upon his return yesterday the chancre had shrunken to one-sixth of its original size. I know that it will be healed when he returns for the next visit, six days hence, allowing just two weeks from the time of the original sodium cacodylate injection to that of complete healing. Usually chancres heal within from six to seven days, and much faster with sodium cacodylate than with salvarsan. The speed of repair is accelerated by putting chrysolate of argyrol over the surface of the sore at the first visit. Owing to the great increase in the price of salvarsan, from $30.00 to $35.00 an ounce, I think sodium cacodylate is the therapeutic agent of the future. Fifteen cents' worth is sufficient to cure a chancre.

"We are very much impressed with the rapidity with which the primary lesion is healed by sodium cacodylate. As to the permanency of the cure, we are not so certain, but we know that '606' has been a failure as regards permanency of cure and a great disappointment.

"The second case was that of a doctor who, despite an abrasion on the back of his finger, examined a patient with ungloved hand and contracted a typical chancre. He will likewise be treated with sodium cacodylate, beginning with two grains hypodermically. Unfortunately, his disease is in a much later stage, because the eruption is just commencing to appear. The drug will be rapidly increased up to five grains a day in an endeavor to prevent involvement of the central nervous system.

"There are some peculiarities about the locality of the primary lesion in these syphilitic infections that lead to very serious sequelae. When the chancre involves the prepuce, the central nervous system is invaded much later than when the chancre is situated in the rich vascular tissue of the urethra. For instance, if in the presence of gonorrhea a chancre develops in the urethra, the syphilitic injection is by far more liable to involve the central nervous system early. So common is this that we never analyze a case of this class with a history of gonorrhea without exacting all the details of the attack, if there is anything in the patient's make-up that arouses a suspicion of syphilis, because when the chancre locates in the urethra, the spirochetes never of themselves give rise to the pronounced lymphatic infection and the adenopathies. Furthermore, the cutaneous eruption is conspicuous by its absence. Patients with the urethral portal of entry never have alopecia as a secondary sign. Why? Because with a specific infection of the urethra the spirochetes enter the bloodstream directly, and not through the lymphatics to the bloodstream. The anatomic reason is that the urethra has no submucosa: it has a basement membrane, but no submucosa. It has just a vascular network on the corpus spongiosum, so that the spirochetes enter the blood directly, and the syphilitic infection first manifests itself by a central nervous system lesion. For example, we had a man here the other day from Albuquerque, New Mexico, who positively denied any infection, but who had a urethral discharge which had been prolonged, but at no time profuse. Get the idea!—prolonged, but not profuse: it was the urethral spirochetic infection that caused the slight discharge and minimal irritation, which continued for a long time. He came in with a cerebral thrombosis developing after an epileptic attack. He gave a quadruple plus Wassermann, without anything at all suggestive in the history. Think of it! This emphasizes the clinical course of primary urethral chancre infections.

"VISITING DOCTOR: How long after the appearance of the initial lesion do you give the sodium cacodylate?

"DOCTOR MURPHY: I give the sodium cacodylate immediately after the appearance of the initial lesion, and keep it up until the external manifestations have entirely disappeared—two weeks, three weeks, four weeks. First we commence with two grains once a week, always starting with the smaller

doses. Why? Because some patients have an idiosyncrasy to arsenic. This has been known as long as arsenic has been known. If the idiosyncrasy is marked, it gives the patient the garlic breath. If there is no idiosyncrasy, the drug is pushed up to five grains.

"The sodium cacodylate is marketed in ampules. We never mix it ourselves, and never let the druggist mix it. We have not given it intravenously: perhaps that will be done. Nothing is more beautiful than the healing of a chancre by sodium cacodylate. We used it before we had '606.' In one of my original articles I cited the case of a girl who had been infected from a drinking-cup, developing a chancre on the lip, which, under sodium cacodylate, healed completely in eleven days.

"If we can cure the primary lesion in six, eight, or ten days, the syphilis problem is mastered. Why? Because the danger of transmission is thereby minimized. It is from the primary lesion and the secondary manifestations and discharges that contagions occur. We can have the chancre patients arrested and detained in the hospital for a week or ten days, but they cannot be forced to quit business for twelve weeks or more, as was necessary for healing in the old treatment. That is the way the problem is going to be solved.

"The question as to whether sodium cacodylate permanently cures each individual is not so paramount as the knowledge that it is the factor that puts him in dry-dock while the danger of transmission is active. It is the healing of the primary sore that stops the transmission and that can be done very readily."

A CONGRATULATORY LETTER. SALVARSAN AND SODIUM CACODYLATE

Whenever I receive the pink slip with my journal I always feel much as I do when I have a very serious patient—that I am afraid I am going to lose a friend. However, there is one redeeming feature about the journal—I can call it back to life with the necessary "long green." I want to say that CLINICAL MEDICINE for May was a "headliner."

In your editorial "Making the Patient Comfortable" you have spoken a world of truth. Every young man should have a copy of this article, and some of the old men that I know need it badly.

Since salvarsan is not obtainable I have been using sodium cacodylate and have had some marvelous results.

In the injection treatment for hemorrhoids, Doctor Morley makes it plain enough for almost any tyro to tackle the operation. I have used the same method for more than three years and find it all that is claimed, and I agree with Doctor Morley that it is not used enough by the regular men and the patients drift into the hands of the quack who is shrewd enough to realize the value of the method.

I am not trying to write a paper nor to be a critic, but I must let you know how much I appreciate CLINICAL MEDICINE. I have heard it said that even an editor needs encouragement. All in all, the May number is the best yet. I have never seen so much that is helpful in one number before.

H. D. LEH.

Lancaster, Pa.

SODIUM CACODYLATE: THE QUESTION OF PRIORITY

I notice in your valuable journal of May, 1916, you give credit to certain Chicago men because of their clinical priority in the use of sodium cacodylate in syphilis.

Some years ago I had the pleasure of receiving a letter from Doctor Spivak of Philadelphia, congratulating me because of my priority in publishing a few sentences upon this valuable drug in syphilis in your journal—about 1908 I think. Doctor Spivak at that time, he gave me to understand, had about 80 cases upon which to report. I did not have that number.

With all due respect to Dr. John B. Murphy *et al.* I am sure you have "slipped a cog" in proper recognition both as to originality and priority.

According to Doctor Spivak, I am quite sure I did mention the use of sodium cacodylate in syphilis prior to its recommendation by Doctor Murphy.

W. C. GREENWALD.

Cleveland, Ohio.

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[Doctor Greenwald's brief article in CLINICAL MEDICINE, to which he refers in this letter, was published in the issue of May, 1910, page 546. On referring to this I find that he speaks of Murphy's prior employment of sodium cacodylate, which led him to try the remedy in one case. This seems to settle the question. Doctor Greenwald's article was certainly the first on the topic appearing in this journal, and one of the first

published in America. Since it appeared a large number of clinicians have been working with this arsenical salt.—ED.]

BATHING THE PATIENT IN BED

On this page of CLINICAL MEDICINE, we are reproducing a photograph which appeared originally in *The Nurse*; this being one of a group of pictures, printed in that excellent publication, which illustrate the method of bathing a patient in bed. We show it here, because we believe physicians should know more about the practical "kinks" of nursing, especially since—in country districts at least—many physicians have no trained nursing-help available.

As you may see by this photograph, special bathing facilities are not necessary in order to give a patient sick with typhoid fever or any other serious illness a full tub-bath. In fact, this bath can actually be given in the patient's own bed. All that is necessary is, a rubber sheet, which with a little ingenuity can be placed under the patient without his being lifted out of bed, then the edges can be raised by putting under this rubber sheet rolls of blankets, so that the patient will lie in the depressed portion, with high edges all around, as shown in the picture. Then the bed can be filled up with water of the desired temperature. In this position, also a sponge-bath or spray can be applied, as shown in this picture. When giving a cold bath, it should be remembered that friction should always be applied. Cold compresses are usually applied to the head.

THE INJECTION TREATMENT OF HEMORRHOIDS

CLINICAL MEDICINE is one of the most practical and helpful medical periodicals in circulation, and I find many splendid articles therein.

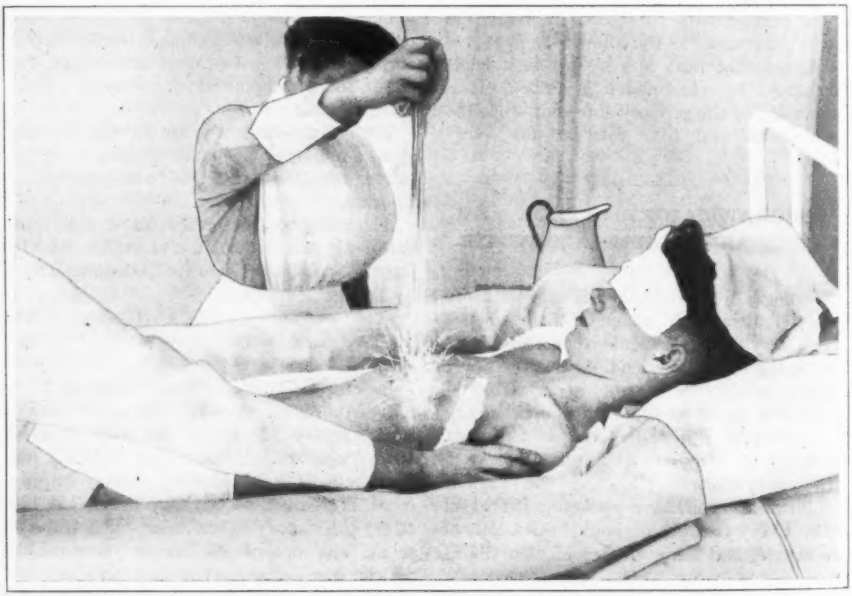
Since there is such an interesting discussion of the injection method for the treatment of hemorrhoids, I wish to say that it is a splendid method. To learn all about its precautions and its origin it is well to get the book by Dr. W. P. Agnew of San Francisco. It tells all about it.

G. C. WILKE.

Fort Collins, Colo.

[We have been much impressed by the revival of interest in this method of treatment in England. An abstract of another article on this topic will be found in the "What Others are Doing" department, this issue. See page 521.

Doctor Agnew's book on "Hemorrhoids and Other Rectal Diseases," to which Doctor Wilke refers, was published about twenty-five



Showing How Patients May be Bathed in Bed

years ago, and we believe is now out of print. We have a copy in our library, which we value highly, although the technic of the injection treatment has been considerably elaborated, and perhaps improved (this is a matter of opinion) since it was written. Agnew used a 50 percent solution of carbolic acid, his formula being as follows:

Acid. carbol. cryst.....oz. 1
Aquae dest.....drs. 2
Sod. bibor. et plumb. glyc.....drs. 6
M. Sig.: Solution for hemorrhoids.

The "sod. bibor. et plumb. glyc." in this formula is a mixture of equal parts of lead acetate and borax, two drams of each with one ounce of glycerine. After mixing it must be allowed to stand for twenty-four hours, although solution is facilitated by putting the vial containing the mixture in a water bath. Whether it has any advantage over those used by Morley and others is a matter of opinion; however, most operators now seem to prefer a weaker solution—20 percent phenol seeming to be about the average.—ED.]

AN EXCELLENT ANTISEPTIC IODINE COMBINATION

In view of the controversy in medical journals regarding the value of antiseptics in the treatment of wounds, I venture to submit to the members of the "family" my formula for an antiseptic combination that I have been using more or less for the last fifteen years.

I triturate in a glass mortar 30 grains of iodine crystals with 1 ounce of phenol-camphor until complete solution is effected and then add 1 ounce of compound tincture of benzoin. Then it is ready for use.

For badly infected sores, I employ this mixture in full strength; however, in milder cases or as a preventive of infection, I dilute it with olive-oil. In chronic indolent sores, such as leg-ulcers, I add balsam of Peru. To make it into an ointment, I evaporate the alcohol from the tincture of benzoin, while for the ointment-base, I use a mixture of 3 parts of woolfat, and 1 part of petrolatum.

The advantage of this combination over Carrel's hypochlorite solution, is that it is more effective as an antiseptic and the effects are of much longer duration. It is absolutely non-poisonous and also nonirritant. It is a superb analgesic and promotes healing better than any other antiseptic I know of.

One strong point in favor of this combination is the protective coating which it affords. The original purpose of adding the compound tincture of benzoin was for this very protective quality, although I soon discovered that it amazingly improved the healing action of the mixture.

To demonstrate its healing effect, just try it in the following proportions in a case of chronic leg-ulcer:

Iodine crystals.....grs. 30
Phenol-camphor.....oz. 1
Balsam of Peru.....drs. 4
Tincture of benzoin, compound ...ozs. 2
Olive-oil, enough to make.....ozs. 6
Directions: Apply once daily on gauze and over it apply an elastic bandage without rubber.

For punctured wounds of the palms of hands and soles of feet, with a sharp knife trim the thick skin down to the quick around the edge of the wound; then with a good medicine-dropper inject a few drops of anesthaine. Clean the wound out with a solution of peroxide of hydrogen, after which inject some of the undiluted iodine-phenol-camphor solution. The wound may then be dressed with the dilute oil mixture, and it will give no trouble whatever. There is no need to fear tetanus.

In cases of small wounds of the face, I make the necessary repair and then paint the wound several times a day with the undiluted solution, leaving it open, without any other dressing. Healing is very rapid, with a minimum of scarring.

In the treatment of crushed and lacerated wounds of the hands and fingers, the preparation can not be excelled, as here its analgesic qualities make it indispensable, after once having been tried.

W. A. MARNER.

Miles, Iowa.

EXPERIENCE WITH THE CURLE TUBERCULOSIS TREATMENT

I wish to tell of my experience with the Curle treatment of tuberculosis. I first tried the method on an important case after I had read about it in the January, 1914, number of CLINICAL MEDICINE. This patient was benefited, and the disease-process stopped.

Recently I have employed the method in a case of tuberculosis of the advanced miliary type, made worse by pregnancy. The woman was confined February 14, and pursued a downward course from that time on. She died on April 19, a result that I anticipated. In spite of the desperate character of this case, the patient experienced a slight increase of appetite and the looseness of the bowels was checked. She did not last long enough after this treatment was instituted, however, to experience much benefit.

I shall try the Curle treatment again whenever an opportunity presents.

LUTHER WALL.

Slaton, Texas.

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[The method of treatment to which Doctor Wall refers was introduced by Doctor David Curle, of Glasgow. The purpose of the treatment is to throw free iodine into the blood of the patient. This is accomplished by giving potassium iodide by the mouth, the dose being 30 grains, administered in 5 ounces of water after breakfast in the morning, washed down with clear water. To break down the potassium iodide in the blood, with release of free iodine, an oxidizing agent is used, chlorine being employed for this purpose. Three to four hours after taking the potassium iodide the patient is given one ounce of freshly prepared chlorine solution diluted with 9-ounces of lemonade. This chlorine lemonade is repeated at two-hour intervals until (as a rule) three doses have been taken. This is the daily treatment.

This method of treatment was highly lauded by Curle, and was praised by Reeve and others. Little has been written about it in this country, and we have received but few reports from our readers, so we are not prepared to praise or condemn. However, we have much faith in iodine. It undoubtedly has distinct value in tuberculosis, and we know of many physicians who have used it in some form—calx iodata, for instance—with much satisfaction. In combination with such remedies as guaiacol, nuclein, and the like, it has seemed to us to promise much. The Curle method of treatment rests upon a perfectly comprehensible hypothesis. If other readers of CLINICAL MEDICINE have had experience with it, we shall be glad to hear from them.—ED.]

A DOUBLE MONSTER

Our old friend Doctor Laura M. Plantz, of Putney, Vermont, has sent us a photograph of a double monster, born in Gallipolis, Ohio, March 20, 1916. The parents were James Beckett, a laborer, age 64, and Nancy Mouring Beckett, age 42. They had twelve children, five of whom are living. The attached twins, whose pictures are shown herewith, were both females, their combined weight was 15 1-2 pounds, and they lived about twenty minutes. Doctor G. A. Mack, who attended the mother, wrote as follows:

"The chests were separate, the abdominal organs coalescing, particularly the livers and stomachs, forming one liver and one stomach for both. The mother made a nice recovery, and was out of bed on the ninth day."

DOCTOR BOWERS' BOOKS FREE

Send 8 cents in postage stamps and receive free copies of two valuable books, one on "Diet" and one on "Beauty," which Doctor Bowers has written for *The Associated Sunday Magazine*. These books would ordinarily sell for 50 or 75 cents apiece. Address Bruce Barton, Editor *Every Week* magazine, 95 Madison Avenue, New York City.

NASAL OBSTRUCTION: RISING TO THE EMERGENCY

Several days ago, a man in an excited condition hurried into my office and reported that his little son had a button stuck in one of his nostrils. Immediately I was reminded of an experience I had about twenty years ago. At that time, I was in a drugstore when I was called to see a child, about three years of age, troubled in the same way. Looking up the child's right nostril, I discovered there a shoe-button firmly impacted, but could not remove it in the usual way. So, I told the father to hold the child in his arms while one

A Double Monstrosity

of my friends held its head. Then I pinched the child so that it cried lustily, whereupon I applied my mouth to the child's mouth and vigorously blew into it, with the result that the button flew out from the nose.

Remembering this experience, I submitted this child to the same treatment and promptly secured the same result. This child had a similar experience about a year before, but, as I was not at home, the father went for a local colleague who specialized in diseases of the eye, ear, and nose. He failed to remove the button, whereupon the family took the child to their own physician in New York. That gentleman etherized the infant and pushed the button back into the pharynx.

There is a knack in "doing things" without instruments. I have exercized a similar knack in examining the vagina. I have used a large tablespoon, bending it so as to make it a very passable speculum.

A. J. ANDERSON.

Astoria, N. Y.

THAT UNFORTUNATE ADDICT

Concerning the case of the unfortunate physician referred to, by "H., Missouri," in the May number of CLINICAL MEDICINE, there is only one course for him to pursue. He should go to the Internal-Revenue Collector of his district, state his case as it is, and get permission to use whatever amount of morphine is necessary. This permission will be granted. The amount of the drug necessary to hold him in comfort will not have to be increased, and he will improve in health and possibly be able to return to his work once more.

It is a great mistake to withdraw the drug from these chronic addicts. The Harrison antinarcotic law was not designed to apply to this class of cases, but to prevent the illegal sale of narcotic drugs and prevent the making of new addicts. It is being enforced in a thoroughgoing manner, and will, in one generation, wipe out the wrongful use of the drugs named in the measure. If it could be applied to the sale of alcohol and tobacco, it would go far toward checking the degeneration of the race that is shown to be going on in all the highly civilized (?) countries.

I have a woman patient who has been using morphine for 41 years, beginning, at the age of 14, for a chronic affection. She came under my care seventeen years ago and at that time was taking about 600 grains of morphine each month. I reduced the amount gradually to 480 grains, which was the least that would hold her in comfort. During these seventeen years, this woman has never asked to have the amount increased. She has been able to attend to her family and social duties and today, at the age of 55, is in fairly good health.

CHARLES G. PURDY.

New York, N. Y.

DEPARTMENT OF EXTENSION

The doctor often finds himself confronted by the duty of instructing his patients concerning the preliminary care, the management, and the after-care of the isolation-room. A great deal of time is consumed in imparting this instruction to the patient or attendant. The following article will conserve the physician's time. More important, however, is the fact that it will increase the efficiency of management of the case. No matter how well the doctor may explain the details of sanitary conduct of the quarantine, the patient may fail to grasp the instructions.

These printed instructions (which may be reprinted in leaflet form by anyone) enable the doctor to avoid omitting essentials, they guarantee that the patient will not forget, and they save time.

Care of the Sick-Room, and How to Fumigate It

It is prudent to disinfect or at least cleanse every sick-room at the termination of the illness. The method used must be decided upon by the physician, who can take into account the nature of the disease. If the room and its furnishings have been selected with foresight, the removal of all danger of contagion is a simple matter. It is, therefore, wise to anticipate the day of fumigation by contriving that the sick-room shall contain nothing that is hard to disinfect and be located appropriately.

While the law does not require a quarantine in the case of all communicable diseases, the directions given below are intended for the quarantined sick-room or isolation-room.

The room selected for the patient should be as remote as possible from the other used portions of the house—a room at the end of a hall or off in an "L" is suitable.

The patient often is able to wait on himself, especially during the latter part of the convalescence. As a rule, however, an attendant, preferably a trained nurse, is required. Since the patient and attendant must remain in the isolated room at all times, it is highly advisable to have a bath-room adjacent to the sick-room.

The floor and walls of the room should be bare, and no curtains should be used except washable ones. Upholstered furniture and cushions should be eschewed. The room should be capable of being closed tight; hence, rooms opening off through open archways into others rooms are not appropriate.

It depresses a patient to listen to a discussion as to where or how he is to be isolated. In his

hearing, conversation should be limited, if possible, to a discussion of how to make him comfortable, rather than how to protect the health of others.

Even during isolation, it is necessary to arrange for the ingress and egress of certain essentials. Food can be carried on a tray or plate. After meals, the tray can be placed by the nurse in a dishpan left for the purpose outside near the door. The dishpan can then be filled with water and set on the stove; and after the water boils the utensils may be handled safely.

The well members of the family should not use the bath-room adjacent to the sick-room. In small households, where there is only one bath-room, it can, by proper precautions, be made to erve. The seat of the toilet should be washed with an antiseptic solution after being used. The tub should be reserved either for the sick or for the well. All who enter the bath-room should regard it as neutral territory and should carefully avoid touching anything with the fingers.

The sick-room should be cleansed by some dustless method. Mopping the floor with a mop wrung out of antiseptic solution is one satisfactory way of cleaning the floor. The furniture, door-knobs, window-sill, and the accessible portions of the woodwork should be rubbed with an oiled rag or with a rag moistened with an antiseptic solution. Cloths moist with kerosene are excellent.

The bed-linen should be removed with the minimum amount of waving through the air, and, together with the personal linen, should be placed into a clean pillow-slip. The laundryman or washwoman should be instructed to soak the pillow-slip in boiling water for five minutes before removing its contents.

The antiseptic solution used for wiping off chairs, doorknobs, etc., should be one of the following: Corrosive-sublimate solution, 7 grains to 1 quart of water; solution of pure carbolic acid, 2 teaspoonfuls to 1 pint of water; kresol solution, 2 teaspoonfuls to 1 pint of water; formaldehyde solution, 3 teaspoonfuls to 1 pint. Either of these solutions is effective. The bichloride solution is odorless, but poisonous. The formaldehyde solution irritates the eyes and should not be used in the sick-room. The kresol solution has some odor.

When the day for releasing the quarantine arrives, the fumigation can be conducted with very little difficulty if the foregoing instructions have been carried out.

The patient's clean clothing should be placed outside the sick-room. The patient should then take a careful sponge-bath with a corrosive-sublimate solution of 7 grains to the quart of water. The hair should be thoroughly soaked in this solution. The entire body should then be rinsed off in pure water. The patient, leaving the sick-room without touching anything, should put on clean clothing, then go where he will.

The nurse or the attendant should then attend to the disinfection or purifying of the room by one of the several methods given below. The selection of the chemical to be used should, of course, be left to the physician; but, regardless of which chemical is used, the room should be prepared for fumigation as follows:

The floors should be mopped thoroughly with corrosive-sublimate solution (7 grains to the quart of water). The mattress should be wiped with a rag wrung out of this same solution. The blankets should be hung on lines or on the bed, so that they hang free of folds and wrinkles. The closet-door should be opened and the dresser-drawers pulled out, and all articles of clothing hung up on lines. Furniture and woodwork should be gone over with a cloth wrung out of the bichloride solution mentioned above. The floor should be sprinkled with water. Books are not easily disinfected, and they should not be used after having been in the isolated room. Valuable books, however, need not be destroyed, but should be disinfected in a small airtight box, by means of a concentrated vapor. The book should be stood on end and the leaves separated one from the other.

Before starting the fumigation, the room should be made as nearly as possible airtight. Wetted strips of newspaper 6 inches wide will adhere over the cracks around the windows and doors. Chimneys can be stopped by stuffing in newspapers. Keyholes can be stopped with cotton. The chemicals chosen by the doctor should be at hand ready to release the vapors for fumigation. Either one of the following may be used:

1. Solidified formaldehyde method.—This is economical and safe, but only reliable goods should be used, preferably those endorsed by the state board of health. To ascertain the cubic capacity of the room, multiply the length and breadth of the room (expressed in feet); then multiply this product by the height of the ceiling (expressed in feet). The result will be the number of cubic feet in the room. Place the formaldehyde-lamp of the required size in a tin or iron pan on a brick near the center of the room. Light it, then leave the room at once, closing the door behind. Seal all cracks around the door with strips of wetted newspaper. Leave the room closed for six or eight hours, then open the doors and windows and air the room for at least twelve hours before occupying it.

2. Permanganate-formaldehyde method.—Reliable, but expensive. It takes 6 1-2 ounces of permanganate of potassium and one pint of 40-percent solution of formaldehyde for each 1000 cubic feet of air space. After calculating this, as described above, place the required amount of formaldehyde in a large metal bucket, can or small tub capable of holding 8 times the quantity of formaldehyde used. Support this bucket or tub on two bricks near the middle of the room. Prepare for a hurried departure. Then pour the permanganate into the formaldehyde-solution, get out quickly, shut the door behind you, then seal with strips of wetted newspaper. Leave the room sealed for six or eight hours. Then open doors and windows and air the room for twelve hours, or until all irritating fumes have disappeared, before occupying it.

3. Sulphur method.—This is cheap, but the sulphur fumes bleach fabrics and tarnish metal objects, such as picture-frames, brass beds, etc. Calculate as above the cubic capacity of the room. Use 5 pounds of roll sulphur to each 1000 feet of air space. Place the sulphur into one or more ordinary iron pots supported by bricks. Pour half a teacupful of wood-alcohol over the sulphur, ignite with a match. Leave the room at once, and seal the door with strips of wetted paper. Leave the room closed for six or eight hours, then open doors and windows and air the room for twelve hours before occupying it.

The attendant should take a bichloride-solution bath as described for the patient. This can be done either just before mixing the chemicals and starting the fumigation, or it may be done outside the sick-room and the clothing placed in a clean pillow-case, to remain unhandled till boiled.

Just Among Friends

A DEPARTMENT OF GOOD MEDICINE AND GOOD CHEER FOR THE WAYFARING DOCTOR

Conducted by GEORGE F. BUTLER, A. M., M. D.

A FEW talented physicians in the United States are endeavoring to show the people how the best health can be secured and maintained and how the everyday ailments of life can often be prevented or cured by good and careful living. Good and careful living, of course, includes all such subjects as diet, personal habits, clothing, exercise, work, play, rest, recreation, and so on; and now, in addition to his excellent works on sex-hygiene, Dr. William Lee Howard, through his publisher, Edward J. Clode of New York, brings out one of the most practical and interesting books I have had the pleasure of reading, entitled, "Breathe and Be Well." Doctor Howard says, in his foreword:

"Optimism means to me humanity. To be impatient with humanity, is stupid pessimism. I have no warfare against those who have neglected their latent physical forces, but an urgent desire to show them how to use and conserve these powers and forces. The general public are not upon familiar terms with their bodies. They are better acquainted with diseases than with health. Poor health, in distinction from disease, is almost invariably due to lack of understanding that the body is a machine which must have proper fuel for combustion, and its boilers, pipes, and exhausts must always be kept clean—that oxygen must be supplied in sufficient quantity, must burn up waste material every living minute as well as supply energy and new living stuff. The secret is, in knowing how to enlarge the combustion-chambers and control intake and outgo."

How true is the saying of Doctor Howard: "The general public are not upon familiar terms with their bodies. They are often better acquainted with diseases than with health!"

Many contributions by physicians to newspapers and magazines describe the signs and symptoms of diseases, leaving as untoward suggestions on the layman's mind as will a patent-medicine advertisement. And it is refreshing to read a book so full of common sense and practical value as this work of Doctor Howard's. No gruesome, terrifying descriptions of diseases that should be discussed only in the seclusion of a doctor's office, but simple rules, which, if followed, will aid mightily in keeping a person from getting sick.

"There is scarcely a disease that does not have its enemy in the blood or lymph—an enemy ready to war and overthrow the host of disease-germs," writes Doctor Howard, "but, unless the roads and passes are clear and ready to the remotest organ or vessel, they cannot do their alloted work. Just because man has not kept clean and free the highways and byways in the body for his internal allies to march over when called, is the cause of disease. And these highways and byways for the host of fighting bodies to rush over only can be kept clear and free by knowing how to breathe."

One is reminded of the truth and force of Doctor Abbott's slogan: "Clean out, clean up, and keep clean."

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It is not so much science that is needed to keep well and prolong life, as is the following of a few simple common-sense rules.

In "Breathe and Be Well," there are the following chapters, all free from physiological explanations and technical terms and details, but simply worded, understandable, and interesting.

1. General observations upon health.
2. The morning fresh-air cocktail.—The nightcap.—How to breathe them in.
3. The little things that prevent proper breathing.
4. Snoring: The cause and cures.
5. Breathing for beauty.—Breathing and eating.
6. Breathing through the skin necessary for health.
7. New tissues for old.—Rejuvenating the body and skin.
8. Some simple breathing-exercises.

There is much more to this book than one would judge from its title. The book closes

with a quotation from the Sanskrit, answering the question, "What is Life?" He says:

"Life is the interval between one breath and another—he who only half breathes only half lives, but he who uses nature's rhythm in breathing has control over every function of his being."

After reading Doctor Howard's book, one can readily believe that the old philosopher who wrote the foregoing words was right.

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Biliousness, dyspepsia, neuralgia, nervousness occasion, perhaps, three-fourths of all the sufferings endured in civilized society, all arising from chronic ailments; that is, ailments which last for months and years, sometimes being better, sometimes worse. It is almost impossible to enter any household and not find one or more of its members suffering to a greater or less extent from one of the forms of sickness named.

It has been shown indisputably that, although the effects of these four ailments are very different, the immediate cause is in the blood—blood which is imperfect, impure, unnatural to the system, and, hence, must injure it; the cause being one, however different may be the effects in different constitutions. That cause must be removed, as an essential and the very first step toward a cure; and its removal must be followed, sooner or later, by the disappearance of the effects in all cases where these effects have not been allowed to remain long enough to produce actual disorganization of some of the parts affected or long enough to exhaust their vitality, their power of recuperation, such as cancer of the stomach, the liver, the bowels or other part connected with the digestive process.

Then, again, the cause being one, the method of removal will apply to each of the four ailments named, although this removal of the one cause may be accomplished in various ways. In other words, if "bad blood" causes biliousness, dyspepsia, neuralgia, nervousness, these maladies, as also their effects, will be removed by whatever rectifies this bad blood; that is, it removes and supplies a good, pure, healthful, and life-giving material in its stead.

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Bad blood is unnatural to the body; it is essentially a foreign body; and it is physiologically impossible to introduce a foreign body into the living human body without its making instinctive efforts to cast that foreign body out of itself, and it always puts forth all the power it is capable of exerting to effect such a result. Not only so, but it is beautiful to contemplate that, when a foreign body is introduced into the system or when anything in it becomes foreign—such as impure air or food of which it can not make a healthful use, by reason of its being improper in quality or quantity—the system seems to become alarmed and, ceasing some of its ordinary work, it concentrates its energies toward the removal of this foreign body, this internal enemy.

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For example, if a man eats too much, he either becomes "sick at stomach" and nature summons all its energy to enable him to vomit it up and cast it out in disgust or, drawing fluids from certain reservoirs of the system, dashes them in upon the bowels in unusual quantities, to flood away the offending mass, and in this we have the friendly diarrhea, which many ignorantly "stop" and thus often times thwart nature, and by so doing destroy life in a few days. There is something similar in the intelligence of the little busy bee when any "foreigner" enters its hive.

In the case of the human body, it has already been shown that, when anything foreign is to be excluded, ordinary work is suspended until the work of exclusion is completed; hence, the weakness which follows diarrhea and many other forms of disease; it is because nature has summoned extra efforts to its aid, that it requires rest, and time for recuperation. Our highest wisdom in the treatment of all diseases is, to discover what nature wants to do, then to help it in the work and finally to do what is possible to recover from the greater or less exhaustion occasioned by the extra efforts toward protecting, defending, and recovering its normal strength.

When food has become a foreign body in the stomach, by its remaining there undigested, the appetite is taken away, as if nature foresaw that its strength ought to be husbanded, for the purpose of being extended on the extrusion; instead of asking for more food, which would require additional power for digestion. It seems as if a living and reasoning intelligence were being called into requisition in these cases, in so beautifully and wisely adapting the means to the end.

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In reference to the existence of bad blood in the body as foreign matter, two things are

essentially necessary to the recovery of health, as has already been explained. First, the bad blood must be got rid of; second, a pure material must be substituted.

It has also been shown to be a ruling principle in the living organism that, when there is any foreign substance in the body, the action of every limb and muscle and fiber tends to work and push that foreign substance outward, whether it be undigested food, a bullet, a needle or bad blood; for, all are alike unnatural and foreign. Hence it seems to follow naturally that, as a means of helping nature, we should increase the action of limb, and muscle and fiber, by going to work, if you please—in moderation, of course; or, in the event of having nothing to do, to take certain exercises. And, as the muddiest spring will run itself clear, so the body will clear itself of its bad blood, in most cases, if not interfered with, by means even of involuntary motions and operations of its internal machinery; but much sooner if these involuntary movements are aided by voluntary exercise in the open air and proper breathing, as recommended by Doctor Howard.

And, if these things work the bad blood of biliousness out of the system, they will do the same thing in the case of many other ailments—showing that there is a certain unity in disease as well as a unity in the means of cure.

There is a great variety of ailments, an infinitude of combinations of symptoms, which would appear hopelessly complicated; but to the professional mind they are promptly classified and often traced to a single cause—to the wrong action or the want of action in a single organ. However, by rectifying that condition, a host of symptoms will promptly disappear. Hence, the cause may be one, the effects various; but the one remedy, by removing the one cause, may cure a dozen or more of the symptoms of the one disease.

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It is the physician's duty to enlighten the public regarding every phase of hygienic living.

Marfan, in a very fine leaflet devoted to the etiology of mental work, has well analzyed social influence. "In contemporary society," he wrote, "the frequency and intensity of mental work increases daily. In the surroundings in which we live everything contributes to fatigue of the brain." Then he shows how the progress of individualism and the spread of education have enlarged ambition, and he emphasizes the pernicious influence of competition. "The multiplicity of competitions enables us to attain a position through competition only at an advanced age, which involved a prolonged effort, useless and barren for society." He attributes an important role to the development of printing, to the daily papers and to novels, which multiply the emotions and irritate the sensibility." And he concludes: "In subjects exhausted by heredity, these social conditions generate a variety of morbid conditions, especially neuroses and insanity." Camus and Pagniez, of France, have gone into this subject fully, and they write as follows:

"It is very difficult to indicate the prophylaxis for such conditions; but, if it is impossible to regulate individual work, nevertheless, general measures can be taken to decrease overwork, principally by aid of government and large corporations. Efforts have been made with this end in view, and it is to be hoped that they will completely succeed, for, it involves a matter of general interest. Among the laboring classes, the overwork that is forced upon them is frequently a cause of nervousness, directly for those subjected to it and indirectly to children.

"Working women who have been treated in the wards of Pinel have afforded us many sad examples. During certain periods of the year, these unfortunates were obliged to work a great part of the night and their meals were frequently very irregular; we know some who were obliged to lunch sometimes at one o'clock, sometimes at three, and frequently without interrupting their work; others left their workshops at nine o'clock in the evening, returning home without having dined. Exhausted from fatigue, they did not have courage to prepare the evening meal and went to bed, taking a little cold food. They could not long resist this antihygienic existence. Upon the advice of parents or friends, they changed their position, but it did not take them long to perceive that their condition was not improved. They were certainly free to accept or refuse offers of work, buti t is a poor freedom which permits them to choose between misery and overwork. Their consent to this excessive fatigue does not make it legitimate, any more than voluntary slavery makes slavery legal.

"So, we, with many others, emphasize the influence for harm of overwork. This is not a digression; it belongs to medicine, pure and simple. When a physician is studying a disease, and recognizes the cause of the disorder, he should make it known and point out, if

he can, where the danger lies. That is all that we have done."

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The physician, if he is a real physician and not simply a salaried man, must first endeavor to destroy the conditions which render his influence useless. He should act in behalf of the improvement of society, in the largest sense of the word, and not be content with showing the way; he should struggle ceaselessly and find a method of realizing the reforms he judges indispensable.

The first antialcoholic campaigns were received with smiles, and physicians themselves, well instructed regarding the ravages of alcohol the effects of which they see daily, did not regard the antialcoholic propaganda without a certain skepticism. Nevertheless, some of them undertook to direct the movement, and their efforts have been so successful that in certain countries alcoholism has been checked.

Overwork is a question quite as medical as alcoholism. The human organism, we have seen, may be compared in a certain way to an engine. The physiologist studies the combustion and the product; he estimates the quantity of food necessary for a given work, and when the work is increased he observes that the organism uses its own substance. The physician ascertains the effects upon the individual and on his posterity, and it is for him to say that the organism is working too much and it is bad.

Mosso, in his physiological study of fatigue, states that the division of work among men is too unequal and there is danger in this inequality both for the individual and for the race. "That does not concern," said he, "a question of party or a method of agitation; it is a profound conviction, a sacred sentiment of lofty morality which urges methods of studying the means for an equal division of property, without violence, without the shedding of blood, so that work might accord with the laws which govern humanity, so that the workman should not become the slave and be used up by fatigue, so that the human race should not degenerate."

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These ideas are not new, but never has there been greater need to repeat them than in our epoch. They should be repeated by physicians and to physicians. The medical man's role in society is an important one. It is as if what he wishes may come to pass. His voice is always listened to. Perhaps he will succeed in solving in the name of hygiene and science what others from time immemorial have tried to solve in the name of justice and altruism, in appealing with varied fortune to kindness or force.

Another point to be spoken of is work and rest.

Both business and professional men must realize that it is better to regulate their daily tasks with some regard for their nervous systems than to burden themselves with nerve-racking work for weeks and months until they are forced to take a rest. They ought to make it a rule to rest a little whenever an important task is accomplished, particularly after they have gone through a severe nervous strain. This applies to mental as well as physical work. Our strenuous life makes this imperative.

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If we save our nerves from overstrain, we are well equipped to shoulder its burden. It is the only way to counteract the severe nervous strain and responsibility entailed by some vocations. This advice will seem rational, no doubt, yet its efficacy depends on the exercise of a firm will, and that again depends on healthy nerves.

All changes from rest to activity or activity to rest, writes Dr. Meylan, medical director of the gymnasium of Columbia University, are made slowly when nature is allowed to have its own way. Attempts to change suddenly from inactivity to vigorous muscular work bring on severe distress of the circulation and respiration; rapid eating after a long fast inevitably results in acute indigestion; sudden awakening from sound sleep causes general discomfort; an abrupt change of temperature, such as occurs when jumping into cold water, usually brings on muscle cramps and occasionally causes sudden death.

Judicious regard for this physiological law is essential to physical well-being and efficiency. The common practice of taking a cold plunge-bath immediately after rising is absolutely contrary to the laws of physiology and hygiene. The effect of the cold water is, to stimulate all the body-functions to sudden and vigorous activity and also to dissipate temporarily the sensations of leftover fatigue not removed by sufficient rest. The exhilaration produced by the bath accelerates the expenditure of nervous energy for a few hours, but is followed by a reaction in the form of lassitude and depression. It is far better to allow the various body-functions to change gradually from the relative inactivity of sleep to the full capacity of work.

(*To be continued*)

Among the Books

HERTZLER: "SURGICAL OPERATIONS WITH LOCAL ANESTHESIA"

Surgical Operations with Local Anesthesia. By Arthur E. Hertzler, M. D. Second Edition. New York: Surgery Publishing Company. 1916. Price $3.00.

For the general practitioner this is one of the most useful surgical books with which we are familiar. It is a volume to which every physician who owns a copy is sure to resort for information almost daily. No wonder that a new and larger edition has been demanded.

The first two chapters of Doctor Hertzler's book are devoted to a discussion of the drugs employed for the production of local anesthesia and the technic of their administration. Most attention is given to the use of cocaine, quinine and urea hydrochloride and novocaine, although other anesthetic agents, such as stovaine, beta-eucaine, tropacocaine, and the like, are referred to briefly. In the discussion of the technic, details are given with great care. Not only is the physician told the strength of solution necessary, the syringes to be used, and how they are used, but he is also instructed as to the dangers of too concentrated solutions and of the symptoms of toxicity.

Naturally, a very large portion of the book is devoted to a discussion of the operations to be performed under local anesthesia, and the physician is told just how and where to use his anesthetic solution in the management of these cases. The book is one which can be heartily recommended, and it certainly deserves a very large sale.

"DIGS AT DOC"

Digs at Doc and Others. A Collection of Funny Sayings, Principally About the Doctor and His Profession. With 42 original cartoons by R. J. Bieger. Perth Amboy, N. J.: The Perth Amboy Evening News Co. Price $1.00.

I will let you into a secret. This volume is made up of jokes, mainly about the doctor and his problems, and is collected by a good friend of many of the readers of this journal, Mr. B. L. Maltbie, former editor of *The Physicians' Drug News*, and president of the Maltbie Chemical Company. There are a lot of things in this little book which will tickle your funny bone, and the illustrations by Bieger are mighty clever.

"EAT AND GROW THIN"

Eat and Grow Thin. The Mahdah Menus. With a Preface by Vance Thompson. New York: E. P. Dutton & Co. Price $1.00.

Mr. Thompson's eloquent and witty preface to this book—which, be it noted, fills about half of the book itself—starts off with a discussion of the "tragedy of fat." Fat must, indeed, be a tragedy—why else should, in the last few weeks, this book lead all other nonfictional productions among the "best sellers" of Chicago's bookstores?

And, by the way, not the least of the tragic part of fat is the treatment for getting rid of it, as given in this volume. For, what fat man or fat woman can contemplate the following list of forbidden food without being seized with anguish and horror; to wit: (1) pork and fat meat of all kind; (2) bread, biscuits, crackers, and anything and everything made from wheat, corn, rye, barley, or oats, including the inevitable breakfast-food; (3) rice, macaroni, potatoes, corn, dried beans, lentils; (4) milk, cream, cheese, butter, and everything made from them; (5) olive-oil or grease of any kind; (6) pies, cakes, puddings, pastries, custards; (7) iced creams, sirup-sweetened soda-water; (8) candies, bonbons, sweets; (9) wines, beers, ales, spirits.

Nor does this finish the tragedy. Listen: The fat man is strongly advised not to sleep too much; he must not take naps; must not overeat, even of these few dishes that are permitted; must not drink either with his meals or between the meals; must abstain from all alcoholic beverages; must eat no bread other than gluten-bread, and that only toasted; must shun potatoes; and, finally, whenever he feels inclined to ride in a cab he must reconsider and walk instead.

And these are the things the adiposely overblessed may cautiously permit himself to eat,

for the purpose of prolonging his dolorous existence in this vale of tears: Lean meat, sea-foods, most kinds of fruit (except the sweet ones), salads (provided they are not made with the proscribed vegetables), besides a long list of green garden-vegetables. Incidentally, this happy personage is permitted to stimulate his jaded appetite with pickles and Worcestershire sauce.

Now, isn't this a pleasant program to mull over?

Mr. Vance Thompson, in his introduction, certainly does paint a harrowing word-picture of the horrors of the fat man's life, as vividly illustrated by this example:

He falls in love. (It is a destiny—like being born, with the sun in Aquarius; always the fat man falls in love.) And this is his bitterest tragedy. He cannot kneel at Beauty's feet, without a derrick to let him down; and a man who goes a-wooing with a derrick looks like a fool. He cannot clasp the dear girl to his heart—for fear of smothering her.

What can the poor man do?

Fierce burn the fires of love within him; but the fiercer they burn, the faster flees the terrified girl—for he looks like a vat of boiling oil; and that is a fearsome thing to fall into. So, wrapped in tallow, the poor lover goes his sebaceous way—wearing his maiden-aunt's bracelet for a ring.

Love is not for him.

INTERNATIONAL CLINICS

International Clinics. Edited by Henry W. Cattell, A. M., M. D. Volume IV, twenty-fifth series, and Volume I, twenty-sixth series. Philadelphia and London: J. B. Lippincott Company. Price $2.00 per volume.

The first of these volumes opens with an interesting article on "The Coming of Age of Internal Medicine in America," by Sir William Osler, while Henry W. Cattell follows with a celebration of the centenary volume of "International Clinics," the first of which was published in 1891. This volume contains many fine papers. For instance, one by C. C. Douglas on clinical laboratory methods for the general practitioner; one by Brinck on the treatment of internal tuberculosis by means of absorbed light-energy; one on low blood pressure by Potter; one on the irregular heart, by Reilly; one on autointoxication, by Walsh; hookworm disease, by Deaderick; visceroptosis, by Hertz, and one on "My Method of Percussion" by Lerch. These are only a few of the many splendid articles in this volume.

Volume I of the twenty-sixth series contains among other papers one on chorea by Mayer and Mayer; one on drug therapy in cardiovascular diseases, by Satterthwaite; on pellagra, by Tucker; "The Wounded Mind," by Murphy; public health administration, by Trask; prolapse of the genital organs in women, by Byford; inevitable abortion, by Nichols; surgical shock, by Foster; fractures of long bones, by Roberts; together with a general review of medicine for 1915 by Craig and Speese.

We have by no means exhausted the list of excellent articles in these two volumes, which are up to the high standard set by Doctor Cattell.

THOMSON AND MILES: "MANUAL OF SURGERY"

Manual of Surgery. By Alexis Thomson, F. R. C. S. Ed., and Alexander Miles, F. R. C. S. Ed. Volume I (General Surgery) and Volume II (Regional Surgery). Fifth edition, revised and enlarged. With 301 illustrations. London: Henry Frowde and Hodder & Stoughton. 1915. Price $3.50 per volume.

This manual of surgery is one of the most convenient as well as one of the most comprehensive works upon surgery which have been issued in recent years. One objection to most books on surgery is that they are very large, very heavy—not easy to carry and not convenient to handle. The book by Thomson and Miles is issued in three volumes, each of the ordinary 12mo popular-novel size. They are printed upon relatively thin paper, permitting the inclusion of from 800 to 900 pages in each volume.

Volume I deals with general surgery, volume II with regional surgery, and volume III (which has not yet reached us) with operative surgery. The final volume will give the technical details which are largely omitted from the first two.

For clearness of diction and for accuracy of statement, it is very hard to find a work on surgery which covers the ground more thoroughly than this one. Also, it is exceedingly practical and as nearly up to date as any book of the kind can be. For instance, the chapter on syphilis, in the first volume, describes the use of salvarsan and neosalvarsan, but devotes most attention to the mercurial treatment. More than ordinary attention is paid to the common, everyday surgical diseases with which the general practitioner has to deal. In the chapter upon military surgery, the authors wisely state that "many principles of military surgery are in process of solution and it will only be possible to formulate definite opin-

ions when the varied experiences of the European war have been collated." All things considered, the book is a most worthy one, and it gives us much pleasure to recommend it to our readers.

BOWERS: "SIDE-STEPPING ILL HEALTH"

Side-Stepping Ill Health. By Edwin F. Bowers, M. D. Boston: Little, Brown, and Company. 1916. Price $1.35.

This is a book for laymen, written by a doctor who has contributed so frequently to the lay magazines that he knows pretty well what the average man wants to know about the ills that our human flesh is heir to. In this book he takes up the common, ordinary, everyday health problems, such as overeating and undereating, constipation, coughs and colds and their cause and simple methods of treating them, "that tired feeling," headaches, insomnia, neuralgia, falling hair, too much fat, rheumatism, and common ocular troubles. The chapter entitled "Stamping Out Typhoid" is a brief but well-digested account of the wonderful work accomplished in the United States Army by Major Russell and his associates. Chapter sixteen, "Making Loose Teeth Tight," explains the emetine treatment of pyorrhea. This chapter was published some months ago in THE AMERICAN JOURNAL OF CLINICAL MEDICINE, and is therefore known to our readers.

This outline gives in brief some idea of the nature of this interesting volume, which any doctor will read with pleasure and which he can turn over to or recommend to his patients, with the certainty that they will pick up new ideas and come back to him to have them worked out.

It is safe to say that not every doctor will agree with everything which Doctor Bowers says, but he will be a strange man indeed who can not absorb from it many good ideas and much of the stimulation that we all need to enter upon the new and inviting fields of therapy which are constantly opening before us.

WILLIAMS: "LABORATORY METHODS"

Laboratory Methods. With Special Reference to the Needs of the General Practitioner. By B. G. R. Williams, M. D. and E. G. C. Williams, M. D. Third edition. Illustrated with 43 engravings. St. Louis: C. V. Mosby Company. 1915. Price $2.50.

This is the third edition of Williams' excellent laboratory manual, which is already so well known to the readers of this journal that it hardly seems necessary to speak another word in its praise. Dr. B. G. R. Williams, one of its authors, has been a very frequent contributor to the pages of CLINICAL MEDICINE, and our readers by this time are fully aware of the exceptionally practical character of his contributions. In this volume he eschews theory and describes simple tests whose value has already been determined by careful use in his own laboratory and which can be applied by any general practitioner of intelligence and average skill in his own office.

The book, though small, covers a wide field. In addition to an introductory chapter, giving the details concerning laboratory equipment, it contains chapters on the sputum, bacteriologic diagnosis, examination of the blood, the gastric juice and intestinal contents. He also describes such common tests as the Widal reaction and diazo reaction, tells how to find the treponema pallidum, and gives simple methods of water analysis, and the technic of a private postmortem.

This brief review can only hint at the numerous practical problems dealt with in this volume. In the new edition, presented herewith, the authors have added considerable new material, most of which appears in the appendix.

GILE: "NOSE, THROAT AND EAR"

The Nose, Throat and Ear, Their Functions and Diseases. A Treatise upon the Breath-Road, Food-Road and Accessory Organs. By Ben Clark Gile, M. D. With 131 illustrations, eight of which are printed in colors. Philadelphia: P. Blakison's Son & Co. Price $2.75.

One serious objection to most of the books dealing with the medical specialties is that they are inclined to be too "scientific," meaning too technical and abstruse. While such books are excellent manuals for men who are already well instructed in diseases of the eye, nose, throat, or genital organs (as the case may be), it is difficult for the general practitioner to get out of them anything of special value to him. Doctor Gile's book is different. While it is written by a specialist, and to some extent for specialists, the author undoubtedly had in mind the requirements of the general practitioner; and, accordingly, he has dealt with the simple expedients, has not overlooked the demands of medicinal therapy, and has given considerable attention to the minor technical details without

which a book of this kind is worthless as an aid to actual treatment.

Armed with Doctor Gile's book, any good physician can get a very fair idea of the apparatus necessary for his special work, and with a little personal instruction can use such apparatus intelligently. The writer was particularly interested in Doctor Gile's list of remedies employed in the usual routine of his practice. It would be to the advantage of any practitioner to provide himself with these remedies and learn how to use them; and this he can easily do if he has a book like this one on hand for reference.

Of course, this book contains the usual details concerning the common laryngological and rhinological operations, but it also contains much that is of value in nonoperative treatment. All things considered, it is certainly one of the best books of this kind ever published for the general practitioner.

WADSWORTH: "POST-MORTEM EXAMINATIONS"

Post-Mortem Examinations. By William S. Wadsworth, M. D. With 304 original illustrations. Philadelphia: W. B. Saunders Company. 1915. Price $6.00.

There are thousands of physicians in this country who are called upon from time to time to make postmortem examinations; and for that matter any physician may be required to do this at some time and it is essential that he should be prepared to do it with some idea of the information to be obtained, and with some skill in technic. There has been a great need for a volume written by a thoroughly practical man and developing the technical side of the autopsy. Doctor Wadsworth has had the experience, through his long training as coroner's physician to the City of Philadelphia, and that he has technical skill is attested by the masterly way in which he has explained just how autopsies are to be made and just what is to be accomplished thereby. The book is the most beautifully illustrated of the kind which we have ever seen. Merely by an examination of the pictures a man of quick insight can grasp most of the essentials of the art of making an autopsy.

Many pages are devoted to the discussion of instruments, mortuaries, the general and external examination of the body, the dissection, including the primary cut, the opening of the chest, the abdominal exploration, and the routine examination of the viscera. Special regions and organs are taken up and discussed in minutest detail.

There is a splendid chapter upon medicolegal postmortems, in which the author discusses the cause of death, coroner's examinations, medical evidence, exhumation and embalming, and such special topics as abortion, asphyxia, burns, scalds, homicide, insanity, sexual crimes, gunshot wounds-electrical wounds, poisons and the like.

There is also an interesting discussion of the making of photographs, of the repair of the body after a postmortem has been made; and the book concludes with a list of books useful for the men who are required to do postmortem work.

FRENCH: "ACTIVE-PRINCIPLE THERAPEUTICS"

Elements of Active-Principle Therapeutics. By J. M. French, M. D. Chicago: The Abbott Press. 1916. Price 50 cents.

There has been a very pressing need for a small book which would present, in the most direct possible manner, the fundamental essentials of active-principle therapeutics. The task of preparing such a volume has been undertaken by Dr. John M. French, and he has done it splendidly. We fail to see how any man who reads this little volume can fail to be convinced of the advantages of active-principle therapy.

The book begins with a brief story of the development of this method of therapeutics. Next comes a chapter on fundamental laws. This is the heart of the book. It tells why the doctor should use active principles as compared with galenics; why he should employ the "small doses, frequently repeated"; why and how acute diseases may be aborted in their early stages; when single remedies should be used and when the simple combinations; and the importance of beginning early in treating disease. In other chapters Doctor French discusses the materia medica of active-principle therapy.

The application of this method of therapeutics is illustrated by detailed descriptions of methods employed in the treatment of pneumonia, typhoid fever, the acute infectious disorders, and some of the chronic maladies.

Aside from its remarkable intrinsic merit, the book is a delightful one to read. It is so small that the physician can finish it in a few hours, and so convenient that it can be carried in the pocket. We are convinced that thousands of readers of CLINICAL MEDICINE will in the pocket. We are convinced that thousands of readers of CLINICAL MEDICINE will want a copy.

Condensed Queries Answered

While the editors make replies to these queries as they are able, they are very far from wishing to monopolize the stage and would be pleased to hear from any reader who can furnish further and better information. Moreover, we would urge those seeking advice to report their results, whether good or bad. In all cases please give the number of the query when writing anything concerning it. Positively no attention paid to anonymous letters.

Queries

QUERY 6205.—"Treatment of the Cigaret Habit." D. E. M., California, asks if we know of an antidote for the cigaret habit? He has tried one plan, that cut the habitue from the use of two packs to two cigarets daily, and, naturally thinks that if the addict could be content with two he should be able to cut out cigarets entirely.

There is, of course, no positively specific treatment, but if a weak silver-nitrate solution, applied topically, in the mouth, is employed conscientiously, the desire for cigarets is materially decreased or lost altogether; in fact, while the action of the drug lasts, it is almost impossible to smoke a cigaret. As a rule, however, the smoker "forgets" to rinse his mouth with the silver-nitrate solution, and as a result a cure is not attained.

The writer has used atropine valerate in fairly full doses with considerable success: a tablet containing xanthoxyloid, gr. 1; atropine valerate, gr. 1-250; cactoid, gr. 1-32; strychnine valerate, gr. 1-128, and nuclein, minims 5, may also be given every three to four hours, with reasonable probability of proving efficacious. At the same time *thorough* elimination should be maintained, and the patient receive iron and other tonics in rather large doses. In nearly every case some digestive combination, with or immediately after meals, is required.

Another excellent plan is to switch the cigaret smoker over to a very mild tobacco and pipe, and gradually decrease the number of pipes. Here, as elsewhere, a great deal depends upon the individual's desire to rid himself of the habit. In some cases the mucous membrane of the throat and nose requires spraying with a mild alkaline antiseptic. It is quite true that a man who only has to smoke two cigarets a day can get along without them entirely, but the point is that he does not want to do so badly enough.

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QUERY 6206.—"Malarial Hematuria," V. F. S., Texas, reports the case of a boy 14 years old, weighing about 150 pounds, fair, and clear skin and eyes, who is subject to attacks of malarial hematuria. Temperature 101° to 102° F. Suffers no pain, and there is no nausea. He submits sample of urine and asks for diagnosis, prognosis, and treatment. The boy has taken two treatments for hookworm. Worms were found in the stool. Plasmodium malariae are present in blood, and the urine contains staphylococci, streptococci, bacillus coli, red cells (very much destroyed), and albumin to the extent of 18 Grams per liter.

It is quite evident that this little fellow is in bad condition. While he suffers from malarial hematuria, there is also a pus-producing area somewhere. A very careful examination should be made. It is more than likely that there is cystitis, If the doctor will give us a clear idea of general conditions and a short history of the case we shall be in a position to aid him more intelligently. In the mean time, we would be inclined to give one or two injections of emetine hydrochloride. This drug has proven efficacious not only in malarial hematuria but also in hemoglobinuria.

It is quite evident that arbutin and hexamethylenamine (with hamameloid probably) are indicated. Quinine must be given with care. The patient must be very carefully dieted, and do not forget that barley water or other mucilaginous beverage should be consumed freely. Be sure to state the morning and evening temperature. Upon receipt of clearer clinical data, we shall be in a position to make further and more definite suggestions.

QUERY 6207.—"Cerebral Hemorrhage." J. W. S., North Carolina, reports the following case: Male age 57, farmer, temperate. No specific disease, hard manual worker; 6 feet high and weighs 150 pounds. Good habits. Married. Attacked about three months ago with slight form of hemiplegia of left side. This was slight, and he was able to use his feet and hands in a few days and to walk as usual. However, the pupil of his eyes contracted to pinpoint size, and he cannot see well. There is a numbness of his arm and hand that requires rubbing to relieve. He has pain on top of his head that annoys him and is sometimes sharp momentarily. During these attacks there is twitching of the muscles of the face. His tongue and speech are not affected. He has been treated by two other physicians. The blood pressure is high. Kidneys and bowels natural in action.

The symptoms are decidedly peculiar, but apparently point to localized intracranial pressure presumably resulting from cerebral hemorrhage. The main thing is to ascertain the character, cause and exact location of the lesion. The reflexes should be carefully tested and the ocular fundus examined. Ascertain if the slight hemiplegia came on after unusual exertion or profuse sweating followed by chilling of the body. Also a Wassermann reaction should be made to determine the presence or absence of syphilis.

Also a specimen of the patient's urine (four ounces from the twenty-four hour output, stating total quantity voided) should be examined. In the meantime, eliminate thoroughly, and push arsenic iodide in alternation with lecithin, and try to build up the patient.

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QUERY 6208.—"Fecal Incontinence". W. S. G., Iowa asks help in the case of a boy 8 years of age, who for several months has not been able to retain the contents of his bowel. The child has been given large doses of bismuth salicylate which is helping to the extent that the stools are getting lumpy, but still there is inability to control evacuation. The boy does not seem to know when the bowels are going to move. Thinking some intestinal parasite might be a causative factor the doctor submitted a sample of feces for examination, but no parasites were found. There were many triple phosphates, a few pus cells, and a moderate amount of squamous epithelium.

We suggest giving two or three copious enemata of a solution of the sulphocarbolates; then a few *small* divided doses of calomel, podophyllin and bilein, followed by some good digestive mixture containing pepsin, fifteen minutes before meals; dilute phosphoric acid, ten drops with water (sweetened if desired) with meals and pancreatin and papayotin, in combination, an hour after eating; midway between meals brucine and berberine, small doses. Have the boy wear a flannel band. Each night before he retires instruct his mother to massage the abdomen with a little warm olive oil, making a circular motion following the course of the colon.

The cause of the incontinence we are unable to determine from the evidence submitted. There may be an ulcer in the rectum, or other intestinal lesion; or, there may be some serious trouble of the central nervous system.

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QUERY 6209.—"Fate of Urotropin in the Body." V. G. A., Texas. Concerning your somewhat indefinite query, the following facts, briefly stated, probably cover what you wish to be told. Being of comparatively recent determination, they are not as widely known as should be.

The formaldehyde (formalin) is set free from its combination in urotropin (hexamethylentetramine) only in a medium possessing an *acid* reaction (as measured by the concentration of hydrogen-ions). But this, in the physiologic fluids, is true only for the gastric juice and frequently as to the urine. Consequently, according to P. Hanzlic, who writes in the *Archives of Internal Medicine* for 1913, none of the other normal body-fluids, being alkaline in reaction, is capable of splitting urotropin and thus liberating formaldehyde.

The author quoted also never found any of the pathologic body-fluids of acid reaction, those tested being the urine of diabetics, bile of typhoid liver, edema-sera, tuberculosis pus, ascites, cerebrospinal liquor in lues, tetanus, meningitis, and some others; and these never liberated formaldehyde—which also is true of the alkaline urine of cystitis. Contrarywise, the acid urine (measured by H-ions) in various forms of nephritis and in cystitis invariably set free the hexamethylenamine.

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QUERY 6210.—"The Diphtheria Bacillus." J. S. T., Nebraska, propounds the following: "Can a swabbing of the throat of suspected diphtheretic patient be isolated in any way

except by nutrient agar-agar or Loeffler's blood serum? If so, how? Could a swabbing taken late one night be passed upon early next morning without these culture media? Is it possible to isolate the organism with the microscope, from a cover-glass specimen, that night or the next morinng, without cultures being made? Could a severe case of diphtheria be completely cured in two days so that swabbings sent to two different bacteriologists failed to isolate even one little germ? What do you think? Will thank yo very much for information on this matter."

In answer to your first question, "Can a swabbing of the throat of a suspected diphtheria patient be isolated in any way except by nutrient agar-agar or Loeffler's blood serum," I would say that there would be some difficulty in isolating it on ordinary plain agar-agar, the diphtheria bacillus preferring a serum media, especially one containing glucose. On a good Loeffler's blood serum, the diphtheria bacillus will have multiplied to a considerable extent in ten or twelve hours—long before the other bacteria have increased appreciably. In all first-class laboratories the culture is examined after twelve hours' incubation and, if negative, again after twenty-four hours.

However, if the swabbing was obtained from the edge of the membrane and a smear was made upon a glass slide, properly stained, and examined by an expert, the diagnosis could be made immediately. Therefore, it is possible and probable that an expert could make the diagnosis from a swabbing taken at night and passed upon in the morning—in fact, he could pass upon it in fifteen minutes. The writer always makes a smear and very rarely errs in diagnosis. It is absolutely essential, however, that the smear be taken from the edge of the membrane, consisting as it does of fibrin, epithelial cells, and leucocytes, is dead tissue and is necessarily infected with such an enormous number of saprophytes, streptovocci, staphylococci, and the like, that they completely overshadow the diphtheria bacilli.

A really severe case of diphtheria, so far as my experience has shown, could not be completely cured in two days so that swabbings would fail to show the bacilli, provided the swabbings were properly taken and properly cultured and examined.

For many years it has been the rule in all health-department laboratories, before releasing a person from quarantine, to require two negative cultures on two successive days, the cultures to be taken from the throat and nose. Further, it is absolutely essential that no antiseptic be used for two to three hours prior to taking the culture.

From the general trend of your letter, I imagine that some one has made a diagnosis of diphtheria microscopically and that two days later the patient apparently recovered and that then swabbings were submitted to two other pathologists, who failed to find the bacillus. The possibilities in this case are as follows:

First, it may have been true diphtheria. The bacilli were found by the first examiner, but, owing to improper methods, were not found by the other pathologists two days later, either because the smears were not properly taken or an antiseptic had been used on the throat, or the examination failed to reveal them, notwithstanding they were there. Or, it is possible that it was not diphtheria, that the first pathologist found a pseudodiphtheria bacillus or a streptococcus mucosus, with a capsule in short chains, resembling the diphtheria bacillus and necessarily, as it was not diphtheria, the second examination by two other bacteriologists was negative.

Diphtheria antitoxin has little or no effect upon the diphtheria bacilli in the throat. After its administration it is true the membrane tends to retrogress but unless antiseptics be used the bacilli persist in the throat and especially the nose for many days thereafter, notwithstanding the patient has clinically recovered.

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QUERY 6211.—"Scientific Determination of Paternity." F. A. R., Texas, requests us to explain the procedure whereby the father of an unborn child can be identified.

The test to which you refer has received comparatively little attention in this country, but we understand that in France, one or two legal decisions have been rendered on the strength of it. We are not sufficiently familiar with the technic to furnish you with a satisfactory outline: However, the principle is, that the woman is vaccinated with red cells from the blood of the suspected man. Should he be the father of the child, a reaction similar to that observed in the Von Pirquet test occurs in the pregnant woman. Sensitization of the woman (producing the reaction) is believed to occur as early as two weeks after impregnation.

If we are able to find literature upon this subject, we may give further details.

QUERY 6212.—"Undeveloped Mammary Glands." T. H. S., Texas, is treating a girl, just sixteen years old, who for the last year and a half has been excessively intimate with two young men.

"The symptoms that first attracted her mother's attention and for which I was consulted were, excessive menstruation—lasting about ten days of the twenty-eight—and neuralgia of the ovaries, the pain radiating all through the abdominal nervous system. After two weeks' treatment, all the pain, menorrhagia, and the like, has subsided. The os uteri was dilated, to secure free drainage, and the womb was irrigated with a 5-percent silver-nitrate solution. Glycerin tampons were employed, to deplete the congested tissues. I also gave her this mixture: Specific pulsatilla, drs. 2; specific passiflora, drs. 4; specific gelseminum, dr. 1; water and whisky, equal parts, to make 4 ounces. Dose: One teaspoonful every four hours during the daytime; the last dose at bedtime.

"This girl is small and her mammary glands are very poorly developed. Her people are quite well off and the girl doesn't mind spending some money if she can get what she wants; in this instance, a well-developed pair of mammary glands. Her flat breast gives her a stooped appearance. The question is, how can we make those breasts grow? Will corpus luteum do it? It seems to me that the drain upon her nervous system that has been going on for a year and a half is responsible for this condition."

If you will study this matter with a little care, doctor, you will realize that, when an immature girl receives the constant attention of two men, it is not likely, especially under the circumstances described, that her mammæ will develop properly. Had she become pregnant, the breasts then would have developed in the oridnary way; but, with the intense pelvic congestion and constant drain upon the nervous system occurring, it is not at all surprising that the breasts of a girl of sixteen who for eighteen months has been cohabiting with not one, but two men, have failed to develop normally—indeed, that the development was anything but a vicious congestion of the pelvic viscera, as is the case.

As to correction of the trouble, corpus luteum is hardly likely to prove beneficial. Were this girl our patient, we would look her squarely in the eye, and tell her that, if she wants to become a normal woman, she must act as a decent normal girl at her age should act. Let her give those two young fellows their permanent *congé*, or at least get rid of one of them forever and tell the other that there may be some chance for him to marry her in two or three years, provided he will behave. When she has gotten rid of these lovers, she must absolutely refrain from resorting to substitute measures; that is to say, until she has acquired her full development she must let her sexual functions remain in absolute abeyance.

If your statements are correct, as we may assume they are, this girl commenced a strenuous sexual life at the early age of fourteen years and six months. The present writer, has, of course, known many cases in which the same thing has occurred even earlier, but it is rather unusual, unless the patient suffers from some uterine disorder or nymphomania, for a girl of that age to receive the constant attention of two men.

We strongly advise that you continue the depletive treatment. Then, in order to give the patient something to do, instruct her to massage the breasts with lanolin and coconut-oil (equal parts), but carefully *avoiding pressure about the nipple-area*, She may rub in half a dram of this night and morning. You should also impress upon her the fact that, no matter how much money she has, she can not buy a pair of mammary glands, except of the rubber variety. What this girl needs is good honest advice—and to learn that beauty and right living go hand in hand.

PICK-UPS FROM HERE AND THERE

Mure said: "It is my belief that the poisons of serpents, if sufficiently proven, would furnish the safest and most rapid means of combating all human infirmities." Surely—if sufficiently proven! Wish he would begin with old age. Then take up darn-foolishness.

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Subjective pain incident to childbirth serves no purpose in nature, but is an unnecessary result of an unchangeable natural law, that all severe muscular effort is accompanied by pain.—Rongy and Arluck, *Medical Standard*.

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C. K. Humiston got data from 66 great surgeons on several points. Among them was, the use of anodynes after operations. The composite answer (*Ill. Med. Jour.*) was, to give them when they are needed. *Nota bene:* The country is safe!